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Original Articles

TRYPANOSOMES.*

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Until very recently the bacteria or plant organisms have been given a preponderating and almost exclusive rôle in the production of infectious diseases. The studies in the past few years, however, have brought to light another group of organisms which play an exceedingly important part in the causation of diseases peculiar to the warm countries. Unicellular forms of animal life are to-day the recognized causes of a large number of diseases, whereas but a few years ago they claimed but scanty attention. The pathogenic protozoa in a remarkably short time have risen from an obscure to a commanding position by the side of the pathogenic bacteria.

Under the head of *Protozoa* are classed: First, the *Trypanosomata,* which are met with free in the blood plasma; second, the *Hemocytozoa,* which find their habitat within the blood cells and are represented by the malarial organisms in man and by related forms in the lower animals; also by the piroplasmata found in Texas fever and allied affections; third, the *Amebæ,* which are found in the intestine in dysentery. Many other forms of pathogenic protozoa are known, but they are of relatively little interest compared with those mentioned above.

Although the first of these, the trypanosomes, have acquired special importance during the past decade, it is nevertheless an interesting fact that the first representatives of this group were described more than 60 years ago. The credit of the discovery of this group, belongs to Valentin who in 1841 found the first trypanosome in the blood of salmon. In the following year a similar organism was found in frog's blood and it was to this that Gruby gave the generic name *Trypanosoma,* implying a screw-like or auger-like body, the name being suggested by the peculiar motion of the parasite. It will be seen from this that the discovery of these organisms antedates that of anthrax (1849) and of the *Spirillum obermeieri* (1873).

Up to 1850, trypanosomes had been found in the blood of several mammals, notably field mice, moles and rats, but these observations were eventually lost sight of and it was not until 1877 that they were rediscovered by Surgeon-Major Lewis at Calcutta. It was the interest aroused by the findings of Lewis that led to the discovery by Evans in 1880 of a trypanosome in the blood of animals afflicted with a disease known in India as surra. This organism, now designated as *Trypanosoma evansi,* is consequently the first known really pathogenic trypanosome inasmuch as the organisms met with prior to that time are commonly looked on as harmless parasites.

During the following 15 years although many observations were made on the trypanosomes in rats, fish, frogs and birds they attracted but little attention largely because of the all absorbing interest in the study of bacterial diseases. The past decade, however, has witnessed a truly remarkable progress in our knowledge of the diseases due to protozoal organisms and the credit of bringing about a just recognition of the etiologic rôle of trypanosomes belongs to Colonel David Bruce of the British Army Medical Service. In 1894 he began the classical investigation of the terrible tsetse-fly disease or nagana of Zululand, the results of which study were published in 1895, 1897 and 1903. He showed that this disease was due to the presence in the blood of a trypanosome, now known as *Tr. brucei,* similar to that studied in surra by Evans and Lingard, that the disease was transmitted from the infected to healthy animals by the bite of the tsetse-fly, *Glossina morsitans;* and that the persistence of the disease was due to the presence of the parasite in the large game which consequently acted as a reservoir for the virus. The trypanosome which he discovered was transported to England by Dr. Waghorn in 1896 and it is this virus which has been utilized in most of the researches carried out in Europe and in this country.

During his travels in East Africa, in 1898, Koch presumably encountered this same disease which he considered to be identical with the Indian surra. He pointed out at the time the morphologic differences which exist between this trypanosome and that of rats, and by means of a simple animal experiment he was able to differentiate sharply between the two organisms. Thus, in the blood of the rat the two organisms develop side by side and are easily distinguished by the aid of the microscope. If, however, the blood of such a rat is injected into a dog the nagana trypanosome alone appears in the latter and eventually causes death.

This work of Koch served as the immediate incentive for an exhaustive study of the rat trypanosome which was made in 1899 by Rabinowitsch and Kempner. To these workers much credit is due for introducing the staining methods which have thrown so much light on the structure of these organisms. They were able to demonstrate many facts bearing on the mode of multiplication and in addition they showed that active immunity to *Tr. lewisi* could be produced in rats. The study of the rat trypanosomes, begun in 1900 by Laveran and Mesnil, has led to the splendid series of researches on the pathogenic trypanosomes which have come from the Pasteur Institute.

* This paper was presented in substance before the Harvey Society of New York. The lecture was illustrated with numerous lantern slides of which only a few are here reproduced. For the sake of brevity the discussion of the relation of trypanosomes and spirochetes to the intracellular parasites has been omitted.

The *Tr. lewisi* as found in the common rat is an excellent type of the whole group and owing to the almost universal distribution of its host it has been found in all parts of the world. There is probably no city in which the rats are wholly free from this infection. This fact is of interest because it enables any one who is desirous of studying this organism to procure readily the needed material. It should be borne in mind, however, that the infection is not, necessarily, evenly distributed throughout a community but that it may be and is often localized in one or more places. Thus, at Ann Arbor of the first 107 rats caught at different places and examined 5 were found infected and all of these came from the same barn. During the past six years we have repeatedly secured rats from this particular barn and invariably one or more in a catch have been found to harbor the parasite, whereas rats taken in other parts of the city have been relatively free from the infection.

It is an interesting fact that at times the white rat will be found to be spontaneously infected with *Tr. lewisi*. The first observation on this point was made by Laveran and Mesnil in Paris, and later by Terry in Chicago. We have also repeatedly met with infected white rats purchased from dealers in the large cities.

STRUCTURE AND MODE OF MULTIPLICATION OF THE RAT TRYPANOSOME.

Before taking up the more strictly pathogenic forms it will be desirable to consider briefly the structure and mode of multiplication of the rat trypanosome. In general, the facts ascertained by the study of this parasite hold true for the other forms.

In the fresh blood film, when examined by the means of a medium objective, such as Leitz No. 7, the trypanosome readily attracts attention by the sudden commotion of the blood corpuscles in its immediate neighborhood. These are pushed aside or lashed about as the organism moves from place to place. The motion is fairly rapid, more so than is usually the case with the other blood trypanosomes. It will be seen that the body of the parasite is somewhat spindle-shaped and that one end terminates in a single long free whip or flagellum (Fig. 1). The presence of this organ is an important characteristic and it is because of it that the trypanosomes are classed among the *Flagellata*. On careful observation it will be seen that the trypanosome usually moves with its flagellum foremost, picking its way among the corpuscles. The flagellar end is consequently spoken of as the anterior end. The opposite extremity or posterior end is rather sharply pointed, a fact which distinguishes it readily from the other trypanosomes.

On further inspection it may be possible to note the presence of an undulating membrane, a fin-like structure which extends from a point near the posterior end of the body to the base of the flagellum. This undulating membrane constitutes the real locomotive organ, the free flagellum probably having very little to do with the actual movement of the cell. This is seen in the fact that at least one blood trypanosome (*Tr. dimorphon*) is devoid or nearly so of a free flagellum. Moreover, in artificial culture many trypanosomes, although provided with a very long free flagellum, show scarcely any motion owing to the rudimentary character of the undulating membrane. The body of the trypanosome in the living condition is colorless or nearly so and the contents are nearly homogeneous, at most a fine granulation may be observed.

Further details as to structure can only be made out by the application of suitable staining methods. For this purpose the Romanowsky method in some of its numerous modifications is generally employed. No other process of staining brings out so well the structural characteristics of the trypanosomes and for that matter of all protozoa. The principle of the method consists in the use of a "ripened" or polychrome methylene blue which with eosin stains the nuclei and other nuclear structures a deep rose-red, whereas the plasma of the cell shows a pale to deep blue. In this way the details of the structure are brought out in sharp relief. The altered methylene blue owes its peculiar staining properties to the presence of at least two decomposition products, methylene azure (dimethyl and trimethyl thionin) and methylene violet. The use of the former in the pure state is the basis of Giemsa's modification while the latter has been similarly utilized by MacNeal.

An examination of the illustration of the rat trypanosome (Fig. 1) will show the typical spindle form with the sharp posterior end. Near this extremity will be found a small but prominent roundish body known as the micro-nucleus, centrosome or blepharoplast. The function of this body appears to be that of a motile center. At all events starting from the blepharoplast is a prominent line which passes along one side of the parasite to the anterior end at which it is prolonged as the free flagellum. Strictly speaking, the flagellum extends from the blepharoplast to the tip of the free portion. For about two-thirds of its length it is connected with the body of the parasite by means of a delicate membrane or fin-like structure known as the undulating membrane. It will be seen from this that the flagellum forms the backbone, so to speak, of the undulating membrane. Under certain experimental conditions this delicate membranous connection may be dissolved away in which case the flagellum now freed for its full length may continue to lash about vigorously for some time. The base of the flagellum does not originate immediately in the blepharoplast, but from a colorless or achromic zone which surrounds this body.

Near the anterior end of the rat trypanosome will be seen a large oval or roundish body which is the nucleus proper. In well stained preparations the nucleus and flagellum are stained a deep red, the blepharoplast is dark red or almost black, whereas the plasma of the parasite is stained blue. The periplast or enveloping membrane may also take a red stain.

The length of the adult trypanosome, including the free flagellum, is about 25 microns or about 3.5 times the diameter of a red blood corpuscle. The ordinary width is about 1.5 microns. The divisional forms may of course be much longer and wider, while the young cells may be considerably smaller and this is also true of the cultural types.

The stained preparations are especially useful in demonstrating the mode of multiplication of trypanosomes which it may be said consists of a more or less unequal longitudinal division. Transverse division is wholly unknown. As might be expected slight variations in the division process are observed in different species.

In the case of the rat trypanosome the cell which is about to divide becomes longer and wider and at the same time the nucleus approaches the blepharoplast while the posterior end of the cell rounds up. The blepharoplast is usually the first to show evidence of beginning multiplication. It elongates transversely and divides into two parts. To one of these the original

flagellum remains attached whereas the other half as shown by MacNeal, gives rise to a new rudimentary flagellum which then grows into the path of the former, probably because of least resistance at that place, and thus gives the impression that the flagellum is the first structure to divide. The division of the nucleus into two equal parts follows. Exceptionally, the division of the nucleus may precede that of the blepharoplast and in that case the cell may be seen to have three or even four nuclei with but one blepharoplast. Such forms have been noted in tsetse flies (Koch) and in cultures of *Tr. lewisi,* etc. (Novy). Eventually the plasma of the cell undergoes fission resulting in the production of a young trypanosome which may then detach itself from the larger or mother cell.

In addition to this direct division, the *Tr. lewisi* may show during the first few days after infection has taken place, a modification of this process which has been commonly designated as segmentation. The result is a group or rosette of 4, 8, or even 16 small trypanosomes with their flagella directed outward. The rosette formation is not essentially different from the simple direct division outlined above. It is rather the result of a delayed division of the protoplasm while the nuclei and blepharoplasts rapidly increase in number by consecutive binary division, thus giving rise to 4, 8 or more individuals. The successive stages can readily be followed in properly stained preparations. Thus, the parent cell rounds up at the posterior end, while the nucleus and blepharoplast approach. The latter then divides, forming a rudimentary whip. At this stage the cell contains a single nucleus and two blepharoplasts, one having attached the original whip, the other having the new short one. At the next step the nucleus divides and the parent cell which shows no evidence of division of the protoplasm contains two nuclei and two blepharoplasts and two whips, one long and the other short. The two blepharoplasts in turn divide and the resulting cell, still undivided, will show two nuclei and four blepharoplasts. The division of the nuclei soon follows and the body now contains four nuclei, four blepharoplasts, three of these having rudimentary flagella, while the fourth still shows the original parent flagellum. Again the blepharoplasts divide and as a result the cell may show four nuclei and eight micro-nuclei. At the next stage the cell will show eight pairs of nuclear bodies and about this time the common protoplasm divides, thus giving rise to 8 young cells. Figure 2, taken by Dr. MacNeal, shows such a rosette of 8 cells, together with the remnant of the original mother cell. The rosette formation as described is met with only during the early stages of infection. Brumpt has described a similar condition in the case of *Tr. blanchardi* which he found in the garden dormouse. For some reason the really pathogenic trypanosomes do not give rise to multiplication rosettes in the blood.

CONJUGATION.

Inasmuch as among the ordinary protozoa conjugation appears to be an essential condition for rejuvenation and perpetuation of the species it would seem that a similar process must exist for the trypanosomes. The evidence on this point, however, is by no means as definite as might be desired. Schaudinn was the first to describe male, female and indifferent trypanosomes which he found in the stomach of mosquitoes which fed on owls infected with intracellular parasites. Prowazek more recently has described similar forms of *Tr. lewisi* in the stomach of lice and Keysselitz has done likewise for the trypanoplasma of fish as met with in the digestive canal of leeches. It must be confessed, however, that much work remains to be done before it can be said that the life history of one of these organisms has been fully worked out.

PERSISTENCE OF TRYPANOSOMES.

In general, protozoal parasites tend to persist in the blood of the host for a long period of time, even after a condition of immunity has been established. This fact is particularly seen in cattle which have recovered from Texas fever. Although in the blood of such animals it is impossible to detect the piroplasma which causes the disease, yet such blood, months and even several years after the attack, may convey the infection when injected into healthy cattle. Again, in malaria, as is well known, the plasmodium may remain in the blood for a considerable length of time. A similar condition to the above is met with in the case of trypanosomes. This is especially true for the so-called non-pathogenic forms found in rats, birds, fish, frogs, etc. In the case of the rat, the trypanosomes appear in the blood on about the fourth day after inoculation; they then rapidly multiply and reach their maximum about the tenth or twelfth day after which they decrease in number. It is not an uncommon occurrence to find them entirely absent at the end of two or three weeks. On the other hand the parasites may persist in the blood, though in small numbers, for many months. For example, in one rat which we have had recently under examination the parasites were constantly present for more than eleven months, at which time it accidentally died. In like manner we have observed the persistence of a trypanosome in a canary for about three months. The same is true for the flagellates of frogs, fish, etc.

Pathogenic forms may also persist in the blood of the host for a long period and it is because of this fact that such animals, though apparently well, are likely to spread the disease. In the smaller experimental animals these trypanosomes may multiply with sufficient rapidity as to cause death in a few days, but in the larger ones as the guinea-pig, rabbit, horse and cow, and even in man the disease may last for months and even years. Hence the necessity for promptly destroying infected animals, especially when these are brought into a non-infected territory in which the other conditions for transmission exist.

CULTIVATION OF TRYPANOSOMES.

The rat trypanosome was the first protozoön successfully cultivated in a pure form. Since 1903 when MacNeal and Novy reported their first results with *Tr. lewisi* a considerable number of other trypanosomes have been grown by them outside of the body, notably *Tr. brucei, Tr. evansi,* various bird trypanosomes and those of mosquitoes. Thiroux has obtained like results with *Tr. paddæ* and *Tr. duttoni,* while other workers have obtained partial results with a number of the pathogenic forms.

There appears to be a notable difference among the trypanosomes in the ease with which the first generation can be obtained. Little or no difficulty is encountered in starting a culture of *Tr. lewisi.* This is especially true of the bird trypanosomes which can be grown with the greatest ease. Indeed, the detection of these organisms in birds is effected readily by the cultural method although the microscopic examination is usually negative. The flagellates present in mosquitoes are likewise easily cultivated, the only difficulty is the likelihood

of the cultures being overgrown by the bacteria which are invariably present in the stomach contents of these insects.

The cultivation of the more strictly pathogenic forms is somewhat more uncertain, but when the initial culture is once obtained the sub-cultures, it may be said, are assured. In other words the adaptability of the trypanosomes to the artificial medium appears to be variable, but without doubt all of the trypanosomes, even the pathogenic ones, can be cultivated although for some special conditions may be required.

As a rule little or no difficulty is experienced in carrying a culture through a large series of sub-cultures. For example, *Tr. lewisi* has been kept under artificial cultivation for about two and a half years, during which time it passed through nearly 100 generations. In like manner the *Tr. brucei* was carried through about 100 sub-cultures in about fifteen months. Similarly, the bird trypanosomes have been kept in tube culture for over two years and a mosquito trypanosome has been maintained for about one year. Apparently there is no reason why these cultures can not be kept up as in the case of bacteria for an almost indefinite period.

The culture medium, in general, is a blood agar consisting of equal parts of defibrinated rabbit's blood and nutrient agar. The latter is melted and cooled to about 50° C., after which the rabbit blood is added and thoroughly mixed. The tubes, thus prepared, are allowed to set in an inclined position, after which they are at once inoculated. It is essential that the surface of the medium be moist and soft and if this is not the case the tubes should be placed in an upright position for some minutes until some water of condensation accumulates at the bottom. After inoculation the tubes are closed with rubber caps and set aside either at room temperature or at 25 degrees C.

The initial culture usually requires a week or more although not infrequently, fairly rich growths may be obtained in three or four days. The sub-cultures when once adapted to the culture medium give an abundant growth in a few days and necessitate transplantation every seventh day. Unless this is done the cultures which are very prone to undergo involution changes may die out. With many of our cultures it has been found necessary, owing to the rapid growth at room temperature to retard the multiplication by placing the tubes in a cool room.

On inspection the surface of the medium usually shows but little evidence of a growth. If, however, a loopful of the fluid from the surface is placed on a slide and examined under the microscope it will be found to be extremely rich in trypanosomes. At times, a thick, moist growth can be observed on the surface of the agar and when streak cultures are made, on blood-agar plates, isolated colonies may be obtained. This fact has been utilized to effect a separation of trypanosomes from the accompanying bacteria.

Pure cultures are admirably adapted for the study of the life-history of an organism inasmuch as the multiplication process can be followed under the microscope. The cultural forms as met with in the tubes differ in some important respects from the original blood forms. They are usually smaller, ranging from about 5 to 15 microns in length although with some species a length of 50 to 75 microns or more may be observed. The blepharoplast is usually, though not in all cases, lateral or anterior to the nucleus, thus giving rise to the so-called *Herpetomonas* forms. This fact strongly indicates that the herpetomonas as found in various insects is not a distinct genus, but in all probability a mere multiplication form of a trypanosome. Moreover, some species, as for example, *Tr. avium,* show a distinct differentiation into two unlike forms which are suggestive of sexual types, male and female forms.

Trypanosomes which have been found in the stomachs of mosquitoes, tsetse flies, house flies, etc., present essentially the same characteristics of growth as those which have been grown artificially. In other words they are to be regarded as cultural forms which develop in the alimentary tract in a manner analogous to those cultivated in the test tube. From the evidence on hand it is more than probable that the genera *Herpetomona* and *Crithidia* really represent cultural forms of true trypanosomes.

The cultivation of trypanosomes finds an immediate application in the differentiation of species. Many of the flagellated protozoa are much alike in shape and size and for that reason can hardly be distinguished with the aid of the microscope. The cultural forms, however, are so markedly different in the several species which we have studied as to make it very easy to recognize each kind. Thus, the *Tr. lewisi* in culture is very unlike that of *Tr. brucei* or of *Tr. avium* and it is probable that fairly marked distinctions will be found for the trypanosomes of sleeping sickness, surra, etc. For this reason it is very desirable that persistent efforts be made to bring under cultivation all the important, more especially the pathogenic trypanosomes. That this will in the end be realized there can be no question.

PATHOGENICITY.

The rat trypanosomes are ordinarily considered to have no injurious action on the host. This is not strictly correct for in severe infections of white and even wild rats, there is evidence of fever and of marked depression. Occasionally, though very rarely, the infection may be so intense as to cause the death of young animals. Usually, however, the infected rats show little or no effect as the result of the presence of the parasite. The continued presence of the organism for many months may be looked on as the result of an immunization of the parasite against such anti-bodies as form or are present in the blood. A symbiotic condition may thus be established which may persist almost indefinitely.

It is an interesting fact which serves to distinguish *Tr. lewisi* from all other trypanosomes that this organism can not be transferred to any species of animal other than the rat. The injection of rat blood containing this trypanosome into white, gray or black rats results in an infection in about three or four days. Even large doses of such blood introduced into other animals are without effect except in the case of the guinea-pig in which possibly a slight, though transitory, infection occurs. There are many other examples of trypanosomes having but a single definite host. On the other hand, the known pathogenic trypanosomes usually, as will be seen, are capable of infecting a large number of species of mammals.

TRANSMISSION.

The early studies on surra and especially on nagana demonstrated the rôle of certain biting flies as agents of transmission and Rabinowitsch and Kempner influenced by these observations endeavored to find a similar mode of conveyance in the case of *Tr. lewisi.* They were able to show that healthy rats developed the infection when

placed in the same cage with the infected ones. Furthermore, they obtained positive infection by placing fleas from infected rats on healthy ones or by injecting the latter with suspensions of the crushed fleas. MacNeal was able to show in a similar way that the rat louse could convey the disease. In lice which have recently fed on infected animals the living trypanosomes can be readily detected in the ingested blood. Suspensions of such lice when injected into rats produce the disease, and, in one case, a healthy rat was infected by transferring to it a large number of lice taken from an infected rat. Thus it follows that the infection is carried from rat to rat by fleas and lice and this fact explains the localized infections as often met with. Recently, Prowazek has endeavored to follow out the life-history of *Tr. lewisi* in the body of the louse. In the stomach he observed "cultural" forms of a trypanosome and even described conjugation of male and female forms, but he was unable to infect rats by placing on them infected lice. On *a priori* grounds one might expect to find *Tr. lewisi* to multiply in the gut of the louse as readily as in the test-tube, but the identity of such forms should be established.

Although it is not proven for all cases, insect transmission appears to be the rule for the trypanosomiases of mammals. There is good reason to believe that in the most important of these diseases, notably the tsetse fly diseases of man and animals the insect plays but a passive or mechanical part. In malaria transmission, on the other hand, the insect is an active host and not a mere vector of the virus. The infection of fish and amphibians, etc., likewise appears to be in relation with certain blood-sucking organisms, notably the leeches.

IMMUNITY.

It has already been pointed out that the *Tr. lewisi* disappears from the blood after a variable length of time, depending on the individual resistance of the rat. This usually occurs in from four to six weeks, although it may happen as early as two weeks and as late as a year. The rat which has once become free from the parasite can not be reinfected. In other words it has acquired an active immunity. Rabinowitsch and Kempner were the first to show that the blood of such rats, after receiving a number of injections, possessed well marked preventive properties. In a dose of 1 c.c. the immune serum protected rats either when given before, simultaneously or after inoculation with the trypanosome. A condition of passive immunity can hence be readily established.

The curative treatment of infected rats by means of such serum has given little or no result, undoubtedly because of its feeble activity. Similar efforts at causing the disappearance of *Tr. lewisi* by injections of arsenite of sodium, human serum, trypan-red, have been equally unsuccessful although in several of the trypanosomiases the experimental treatment with these agents has given fairly satisfactory results.

The production of active immunity in the case of the pathogenic trypanosomes is more difficult since with few exceptions the test animals usually succumb to the infection. In no case has it been possible to obtain an immune serum which could be used practically as a preventive much less as a curative agent. It has been possible, however, to immunize cattle, sheep, goats, etc., against several of these organisms and such actively immunized animals have been utilized by Laveran and Mesnil as a means of differentiating trypanosomes. Thus, an animal immunized against *Tr. brucei* remains susceptible to *Tr. evansi* and to the other pathogenic forms. And, *vice versa*, a cow immunized against surra will remain susceptible to nagana. In this way they have been able to establish a multiplicity of species, which conclusion, however, Koch has questioned.

In a somewhat recent paper Koch has divided the six best known trypanosomes into two groups according as they presented constant or inconstant properties, especially with reference to their morphology, virulence and their behavior to the host. In the first group he placed the rat trypanosome and that of galziekte for the reason that these are readily distinguished morphologically from the other pathogenic forms. Also, because in their virulence they show no variation. Notwithstanding consecutive passage through rats in the one case and through cattle in the other the virulence remains the same. Furthermore, their relation to their respective host is fixed since *Tr. lewisi* can infect only rats and *Tr. theileri* only cattle. Because of these facts he regards the organisms as fixed species which have acquired definite characteristics as the result of exclusive association with a special host, in much the same way as the malarial organism in man. Obviously this group can be enlarged by the addition of a number of other trypanosomes having the same general properties.

In the second group he places the four more strictly pathogenic trypanosomes, those of surra, nagana, caderas and of man. To these should be added the dourine and Gambian horse trypanosomes. He considers these organisms as lacking in definite distinguishing properties. Thus, morphologically they are scarcely distinguishable among themselves; in virulence they show a very great variation and they are not limited to a single host. He interprets these facts to mean that the parasites have not become fully adapted to their hosts and hence have not developed into fixed species, but are rather in a state of mutation.

The views of Koch implying essentially a unity of species among the pathogenic trypanosomes can not be said to be established. The immunity reactions of Laveran and Mesnil and others can not be accounted for satisfactorily by the assumption that these workers have studied one and the same trypanosome having merely a variable degree of virulence. Koch himself was inclined to regard the caderas trypanosome as distinct from that of nagana and of surra. Moreover, in a more recent publication he himself has endeavored to differentiate the trypanosomes of the last two mentioned diseases by the "cultural" peculiarities of the flagellates found in the different species of tsetse flies. The organisms found in the stomachs of these flies have been supposed to represent multiplication forms of the pathogenic trypanosomes but this view, as I have shown elsewhere, is open to serious question. The conclusion which has been reached by most observers is to the effect that the several pathogenic trypanosomes represent distinct species although each kind may be subject to considerable variation in virulence.

TRYPANOSOMES OF MAMMALS.

A large number of mammals have been shown to harbor in their blood, at times, parasites belonging to this group. Additional observations are being made from day to day and it almost seems as if there is scarcely a species of animal which may not show an infection of this kind. In the large majority of such animals the infection is of a mild type indicating that the trypanosomes present are practically non-virulent. On the other

hand, in a small number of animals, trypanosomes are met with which are highly virulent and hence give rise to an almost invariably fatal disease. The great importance of this small group of trypanosomes will be readily recognized.

From the foregoing it will be seen that we may divide the mammalian trynanosomes into: 1, Non-pathogenic group; 2, pathogenic group. The non-pathogenic species are represented by the well-known rat trypanosome. Without going into any unnecessary detail it will be sufficient to state that similar parasites have been found in the field-mouse, mole, dormouse, house mouse, hamster, bat, squirrel, gopher, guinea-pig, rabbit, monkey, etc.

The pathogenic forms require a special although necessarily a very brief description. They will be considered in the order as given in the following table:

Name.	Discovered	The cause of
Tr. evansi	1880	Surra.
Tr. brucei	1894	Nagana.
Tr. equiperdum	1894	Dourine.
Tr. equinum	1901	Caderas.
Tr. dimorphon	1902	Gambian horse disease.
Tr. theileri	1902	Galziekte.
Tr. Gambiense	1901	Human trypanosomiasis (Sleeping sickness).
Tr. ? (Piroplasma) donovani	1903	Kala-azar.

SURRA.

This term, implying a rotten or diseased condition, is a common designation in India for a disease of horses and camels. In the blood of the affected animals Evans found in 1880 an organism or *spirochæta* which he considered as the cause of the disease. It is interesting to note that the discovery of the malarial organism in man by Laveran and that of the first pathogenic trypanosome were made within a few weeks of each other. Since then the *Tr. evansi,* as the organism is now known, has been repeatedly observed in outbreaks of the disease not only in India, but elsewhere.

The disease is characterized by a remitting fever, considerable anemia and wasting, edema of the legs, belly and genitals, discharges from the eyes and nose, great muscular weakness and finally paralysis. Horses, mules, camels, dogs and cattle are particularly subject to the disease. As a result of the study of the disease in India it has been assumed that cattle usually recovered from an infection. While this apparently holds true for the Indian cattle it is not generally correct. Thus, during the Boer war the island of Mauritius became infected as a result of the importation of cattle from India and as a consequence enormous losses were sustained among the domestic cattle (25 to 30 per cent. dying) as well as among the horses. Similarly, American cattle imported into the Philippines have been found to succumb to the disease.

At present surra is known to exist in many places outside of India. Thus. to the east it has been recognized in Burmah, Cochin-China, China, Philippines and in Java; on the west in Persia and on Mauritius. In Africa its presence has been established among the camels on the east coast, also in Central Africa and in the Soudan. The diseases of camels known in different places as mbori, soumaya and el debab and the Algerian horse disease called mal de zousfana, are probably all mild forms of surra. This fact has been clearly established by immunity experiments in the case of mbori. Similarly, the *Tr. vivax* described by Ziemann in Cameroun is probably identical with the surra trypanosome.

Morphologically, the *Tr. eransi* is so much like the *Tr. brucei* as to be hardly distinguishable. Its length as given by Laveran and Mesnil is about 25 microns, including the free flagellum, which is about 6 microns long. The width is about 1.5 microns. In general it is narrower and has a longer free whip than *Tr. brucei* and is more actively motile. Like the other pathogenic trypanosomes it is characterized by a well developed prominent undulating membrane (Figs. 3 and 4).

The artificial culture will probably afford the surest means of distinguishing it from the closely related nagana trypanosome. The Philippine surra organism has been grown on blood-agar for a period of 65 days. Although all efforts at transplantation failed there was no question but that multiplication had taken place within the tubes. The cultural forms present were entirely different from those of *Tr. brucei* (Novy, MacNeal and Hare). Laveran and Mesnil were likewise able to keep it alive for 3 months, into the second generation, but further efforts at transplantation failed as did also the animal inoculations. Thomas and Breinl obtained similar results, the organism remaining alive for 37 days. In view of the variations shown by the surra of different countries it is very desirable that attention be given to the cultural characteristics of the divers strains of *Tr. evansi.* In this way it will be possible to pass on the question of the identity or non-identity of the various forms of so-called surra (Figs. 3 and 4).

TRANSMISSION.

It is noteworthy that biting flies were credited with the transmission of the disease by the natives of India and that this view was accepted by Evans and others long before the rôle of insects was recognized in Texas fever, malaria, etc. It is only recently, however, that the question has been submitted to an experimental test. The tsetse fly which plays so important a part in the spread of the African trypanosomiases is not known in Asia and hence other genera of biting flies must be considered. These are represented more especially by the *Stomoxys calcitrans* and *Tabanus tropicus.* Several investigators have found trypanosomes in the alimentary tract of flies which have fed on infected horses and Rogers, Musgrave and Clegg and others have conclusively shown that infected flies will transmit the disease provided they are allowed to bite clean animals within a few hours after the infective feed. It is evident therefore that several species of flies may serve as transmitters of the virus, probably as mere mechanical agents. The possibility of transmission by other insects can not be excluded for the present. The infection of dogs is usually ascribed to their eating the carcasses of animals which have succumbed of surra, the virus probably entering through abrasions in the mouth or alimentary canal, though obviously fleas and flies may also take part in the transmission.

NAGANA.

Early travelers in South Africa, among them Livingstone, encountered a disease of domestic animals which they designate as the tsetse-fly disease or the fly disease for short, this name being given on the supposition that it was caused by the bite of the tsetse-fly, *Glossina morsitans.* The term nagana which has come into use since Bruce made his studies of this disease implies, in Zulu, "to be low or depressed in spirits."

The disease has evidently existed in Zululand from the earliest times. It is not confined, however, to that region, but has been met with on the west coast as far as Senegambia and on the east as far as the Red Sea.

Like the surra of India it affects the horse, mule, donkey, ox, dog, cat and many of the wild animals. It is said to be invariably fatal to the horse, donkey and dog, while but a small percentage of the cattle recover, in which respect it has been supposed to differ from the surra of cattle in India, where recovery was apparently the rule. Singularly enough, while nearly all mammals are subject either to natural or to experimental infection, man, on the other hand, appears to be perfectly immune.

The duration of the disease varies greatly not only among the different species of animals but also among animals of the same species. Thus death may occur in from one to two weeks or as late as two to three months. Cattle may likewise die early, though the disease may be protracted for a year or more. Occasionally they may recover as in the case of the experimental inoculation of Brittany cattle by Nocard. In sheep and goats the course of the disease is also chronic and may last for two to six months and recovery may take place as has been noted by Laveran and Mesnil.

Animals which recover from the infection acquire an active immunity, as is seen in the fact that they can not be reinfected with the same virus. Repeated injections serve to hyperimmunize the animals and the serum of such possesses a slight preventive action. Animals immunized to nagana remain susceptible to infection with the other trypanosomes, as has been shown by Laveran and Mesnil, also by Nocard and Vallée, and consequently this reaction may be interpreted as demonstrating that nagana is specifically different from surra and the other trypanosomiases.

In the large animals the affection is characterized by fever, anemia, edemas of the extremities and abdomen, and extreme emaciation. The animal may waste to a mere skeleton and often becomes blind. Its appetite may last until the end.

In the blood of the diseased animals Bruce discovered in 1894 the trypanosome which now bears his name. (Fig. 5.) As has been pointed out heretofore, this organism is scarcely to be distinguished either morphologically or biologically from the *Tr. evansi*. The immunity experiments referred to have served to show that the diseases are distinct entities.

The *Tr. brucei* was the first pathogenic trypanosome successfully cultivated (Novy and MacNeal). Some difficulty is experienced in securing the first generation but after that there is none. It has been possible to carry such a culture through nearly 100 generations at room temperature and at 25 degrees C. When once thoroughly adapted to the blood-agar medium a very rich growth can be obtained in from three to four days. Even after cultivation for two years such cultures are capable of infecting guinea-pigs. It has not been possible as yet to obtain non-virulent cultures which could be used for the purpose of vaccinating animals against the virulent type.

The cultural characteristics are very marked and serve to differentiate it from *Tr. lewisi* on the one hand and *Tr. evansi* on the other. In view of the fact that nagana of some parts of Africa differs to a greater or less extent from that of Zululand, which fact has suggested the existence of a number of varieties or even a group of allied diseases, it is desirable that in such cases the cultural characteristics of the organism be ascertained.

TRANSMISSION.

The general impression regarding the rôle of the tsetse-flies in the transmission of nagana was fully established by the splendid investigation of Bruce. This was executed in Zululand on the top of Ubombo at an elevation of about 1,900 feet. Although this hill was in the midst of the fly-country, Ubombo itself remained free from tsetses from the beginning of the investigation in 1894 until 1897 at which time nagana for some reason spread beyond its former boundaries and even reached the top of the hills. Bruce early noted the remarkable fact that no cases of the spontaneous disease occurred on Ubombo hill notwithstanding the constant and close association of healthy horses, cattle and dogs with those suffering from the disease and the presence of several species of blood-sucking flies other than tsetses. This observation was confirmed later by Martini who found two infected Togo ponies in the Berlin Zoological Garden, and yet in spite of the presence of ordinary biting flies the infection did not spread among the other animals. These facts go to show that nagana is not spread by ordinary biting insects such as stomoxys, mosquitoes and fleas.

Bruce further showed that horses when taken for a few hours into the fly-country, even though they were not allowed to eat or drink while there, contracted the disease, thus showing that the latter was not conveyed by the food or drink but in all probability by the bites of the flies.

It was further proved that tsetses brought to Ubombo and kept for several days could then bite dogs without producing the disease. Infection, however, occurred if they were allowed to feed on dogs immediately after feeding on an infected animal. This result was also obtained if the flies were allowed to bite at 12, 24 and 48, but not at 72 hours after the infective feed.

Bruce examined the proboscis of the flies at varying hourly intervals after they had fed and found rarely more than a single trypanosome. In the stomachs of such flies the trypanosomes were usually present as long as the blood remained. Up to 55 hours they were always present, but none were found on the sixth day. Owing to the presence of the trypanosomes in the stomachs it might be expected that such flies, if minced up and injected into a dog would produce the disease. This, however, Bruce was unable to accomplish except in one case in which the fly had fed but half an hour before on an infected animal. This result is difficult to explain, especially since we have been able to infect mice by injecting mosquitoes which had an infective feed 24 to 36 hours before.

Within the past year it has been shown by Koch that several species of tsetse flies contain trypanosomes in their stomachs, at the time of capture, even when there is no evidence of the presence of blood to indicate that the flies had recently fed on an animal. It was supposed by him that the flagellates found in the stomachs of the flies represented developmental forms of *Tr. brucei*, although he was unable to infect flies by feeding on infected animals, and moreover failed to infect rats by injecting the contents of the stomachs of such flies. As will be seen similar observations have been made by Gray and Tulloch with reference to the trypanosome of sleeping sickness. The facts noted, however, are all open to an entirely different interpretation and it is more than likely that the organisms seen in the flies represent, as I have shown elsewhere, a harmless intestinal

parasite much the same as that found in mosquitoes and other insects.

Notwithstanding this, the fact remains that the tsetse flies can and do convey the disease provided that they bite within a day or two after they have fed on a diseased animal. The fly therefore acts as a mere carrier of the trypanosome, and that being the case it was necessary to establish the natural source of the disease. It had been shown previously by Lingard in India and confirmed later by Musgrave in Manila that rats may harbor the surra trypanosome. Bruce was led therefore to believe that a similar source might be found in the big game of the fly-country, especially as the general impression prevailed that where there was no wild game there was no nagana. Accordingly, he examined the blood of various animals shot in the fly-country, but could find no trypanosomes in their blood. Subsequently, however, he found the adult organism in three wild animals. Acting on the supposition that the parasites might be present in such small numbers as to escape microscopic detection, he injected the blood into dogs with the result that in the first series nine out of thirty-five dogs thus inoculated developed nagana.

In brief it has been shown that the large game harbors the parasite without any injurious effect in much the same way that the common rat carries *Tr. lewisi.* In such animals the disease is probably chronic and nonfatal and hence they serve as a reservoir for the virus which they supply to the tsetse. It has since been shown that with the extermination of the large game in some parts of South Africa, a result of the introduction of rinderpest, the fly disease itself has become a negligible quantity.

Although considerable effort has been expended to discover a preventive and curative treatment for this infection the results thus far have not been very satisfactory. The administration of arsenic is of no preventive value, but in infected animals serves to prolong life. When given in sufficient dose to the small animals it causes the trypanosomes to disappear from the blood, but only temporarily. After a few days they reappear, and on repeating the injection of arsenic they vanish as before. By repeating the treatment it has been possible to keep rats alive for seventy-nine days, whereas the controls die in about five days. Laveran and Mesnil were unable to effect any cure with arsenite of sodium employed in this manner. Thomas has obtained much better results with a compound of arsenic and anilin known as atoxyl. With this he has been able to cure infected rats, guinea-pigs and a rabbit.

The trypan-red introduced by Ehrlich and Shiga likewise causes a temporary disappearance of the trypanosomes, but only exceptionally is it able to do more than prolong the duration of the disease. A number of other anilin dyes have been used, some of which have given very encouraging results. The recent studies of Mesnil and Nicolle are very promising and it is to be hoped that an efficient "chromotherapy" will be discovered. The alternate treatment with trypan-red and atoxyl has given fair results and it is possible that some modification of this procedure may prove serviceable in practice.

The action of human serum as a curative agent is of especial interest. It may be assumed as established that man is not subject to infection with *Tr. brucei.* At all events though man is attacked in the fly-country by the tsetses no ill effects have been noticed from such bites. The normal sera of diverse animals have been tested by Laveran as to their effect on the trypanosome and of such only the human serum was found to be efficacious. It not only can prolong the duration of the disease but is capable of curing mice. An alternate treatment with arsenic and serum has given still better results.

From this brief outline it will be seen that arsenic, certain anilin dyes and human serum are the only agents known at present which can influence the course of the infection with *Tr. brucei.* A practical, preventive and curative treatment, however, has not yet been discovered, and as it is obviously impossible to reach and destroy all infected animals the prevention of nagana remains a serious problem.

DOURINE.

Unlike surra and nagana, this disease is not limited to tropical countries, for in the past it has been met with in many parts of Europe and it is even said to occur in the United States. Such reports, however, are based purely on circumstantial and clinical evidence, for up to the present time no one has demonstrated the presence of the specific organisms in such cases. The disease, it should be stated, is especially prevalent along the Mediterranean littoral.

The trypanosome of Dourine, *Tr. equiperdum,* was discovered in 1894, the same year as *Tr. brucei,* by Rouget, a French army veterinarian (Fig. 6). By successive passages through rabbits he was able to keep the organism, derived from a stallion in Algeria, for over two years. Since then other observers have confirmed and extended his work.

One notable feature of the disease is that it is not spread, so far as is known, by flying insects. In this respect it differs therefore from surra and nagana and the other trypanosomiases. The evidence on hand goes to show that it is spread exclusively by sexual contact, hence the designation *mal du coit.* It is restricted to breeding equines and on account of the peculiar skin lesions it is sometimes spoken of as horse syphilis. The usual chronic form of the disease is characterized by edema of the genitals, a moderate fever and slow wasting. In from one to two months, plaques of varying size appear on different parts of the skin. The wasting becomes more pronounced and paralysis of the hind quarters becomes manifest. In the last stages of the disease the anemia is profound, the animal becomes paralyzed and is unable to rise. The infected animals may die in from two to ten months, exceptionally they may live for as long as two years.

Experimentally the disease is readily reproduced in the horse, ass, dog and rabbit. Rats, mice and guinea-pigs are apparently refractory to the fresh virus, but after repeated passage the latter will prove infective. It is an interesting fact, first established by Rouget, that a lesion of the mucous membrane is not necessary in order that infection shall result. The direct application of the virus to the conjunctiva or to the vagina is sufficient to cause an infection. The disease has not been produced by ingestion of the parasite.

Although very scarce, the trypanosome can be detected in the blood of the infected animal and especially in the freshly formed plaques. Morphologically it can hardly be distinguished from the other pathogenic trypanosomes. The most important difference, according to Laveran and Mesnil, consists in the absence of the protoplasmic granules such as are present in *Tr. brucei.* Thomas and Breinl were able to keep the organism alive on blood-agar for 17 days, at which time it was still infective, but no subcultures could be obtained.

Animals, such as dogs, which have recovered from the disease, possess an active immunity. But when inoculated with caderas (Ligniéres) or nagana (Nocard) they promptly succumb to these diseases, thus showing that dourine is specifically different.

The treatment of dourine is, on the whole, as unsatisfactory as the other trypanosomiases. Arsenic, trypanred and human serum have a similar action to that noted in connection with nagana.

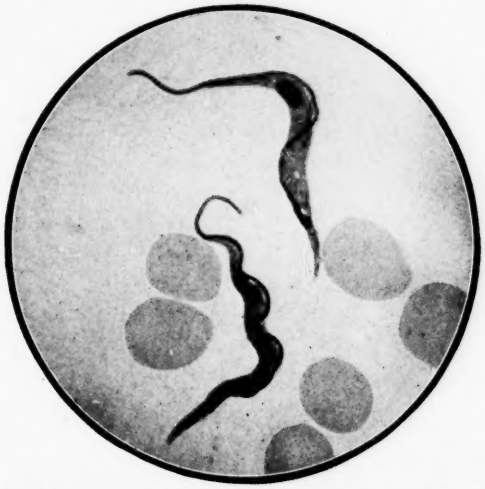

Fig. 1.—*Trypanosoma lewisi* in blood of rat. Note the sharp posterior end opposite the free flagellum; also nucleus and micronucleus. Magnification 1,500 times.

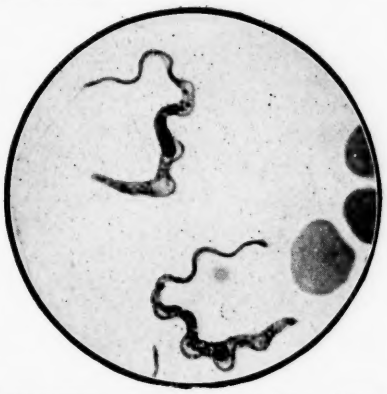

Fig. 3.—*Trypanosoma evansi* (Surra) from Mauritius, in blood of a mouse. Magnification 1,500 times.

Fig. 5.—*Trypanosoma brucei* (Nagana or tsetse-fly disease) in blood of rat. Magnification 1,500 times.

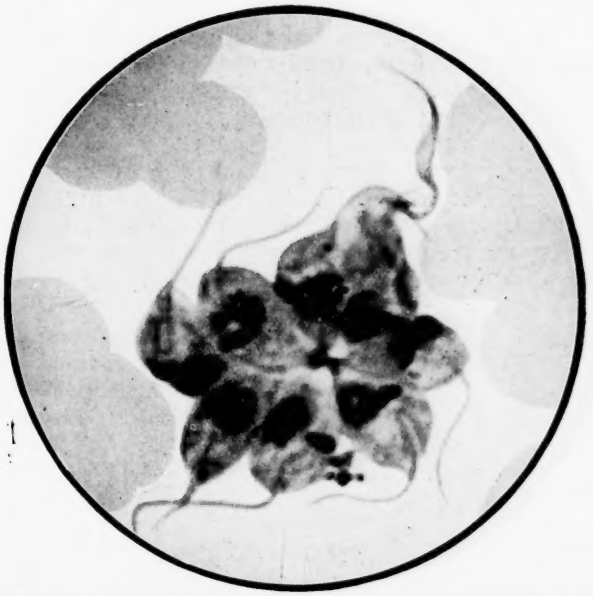

Fig. 2.—A multiplication rosette of *Tr. lewisi*, in blood of rat, showing division into eight cells and remnant with flagellum of original parent cell. The elongated micro-nucleus in each young cell shows two flagella, a long and short one, indicating that further division is about to take place. Magnification 3,000 times.

Fig. 4.—*Trypanosoma evansi* (Surra) from India, in blood of guinea-pig. Magnification 1,500 times.

Fig. 6.—*Trypanosoma equiperdum* (Dourine or Mal du coit in blood of mouse). One of the cells in process of division. Magnification 1,500 times.

CADERAS.

The disease known as mal de caderas is widely prevalent in many parts of South America from the Amazon on the north to Bolivia on the south. It is the only trypanosomatic disease which has been recognized on the American continent. It has been the subject of repeated studies, but its nature was not recognized until 1901, when Elmassian at Assumption discovered the trypanosome which Voges designated as *Tr. equinum*. Caderas refers to the characteristic symptom of the disease, the paralysis of the hip or hind quarters.

It occurs almost exclusively among horses, although instances of spontaneous infection of dogs are known. The ass and mule are more resistant than the horse. The disease may last from a few weeks to 1 or 2 months, or it may be very chronic, persisting for many months.

It is attended with a marked remitting fever; the animal rapidly loses weight, although the appetite continues. Eventually the hind quarters begin to drag and finally complete paralysis results. Anemia and albuminuria are common and hematuria may be present. A notable feature is the almost complete absence of edemas

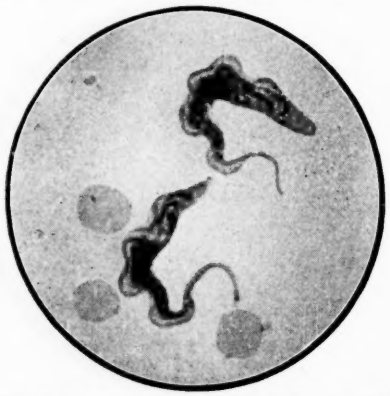

Fig. 7.—*Trypanosoma equinum* (Caderas) in blood of mouse. Note apparent absence of blepharoplasts or micro-nuclei. Double flagellum indicates divisional changes. Magnification 1,500 times.

which are almost always present in nagana, surra, etc. The trypanosomes are not very numerous in the blood and often can not be detected microscopically. The inoculation of such blood into susceptible animals will result in infection.

Rats and mice are particularly susceptible, and in these the trypanosomes become extremely rich and death occurs in from one to two weeks after inoculation. Most of the smaller mammals are likewise susceptible, but the disease is of longer duration. Goats, sheep, cattle and

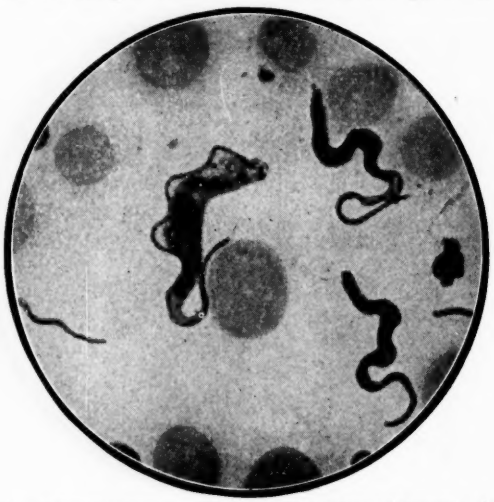

Fig. 9.—*Trypanosoma gambiense* (Sleeping sickness) in blood of a rat. Two types are shown; the broad pale form (female?) is dividing. Magnification 1,500 times. MacNeal's stain.

hogs develop a very mild infection without any visible manifestation. The organism is present in the blood in such very small numbers that it can scarcely be detected except by inoculation of the blood into mice. By this means it has been shown that the blood may harbor the trypanosome for from 2 to 6 months. With these animals, recovery is the rule and they become immune.

Although it is of the same form and size as the other pathogenic trypanosomes, the *Tr. equinum* is nevertheless readily differentiated from these by one important characteristic, and that is the apparent absence of the micro-nucleus or blepharoplast. This structure is so inconspicuous that its existence has been denied (Fig. 7).

Attempts at cultivation have been made by Rabinowitsch and Kempner and Laveran and Mesnil, but without any definite success. Thomas and Breinl observed an apparent multiplication in a blood-agar tube, 29 days old, and with this successfully infected a rat. Subcultures were not obtained.

As to the mode of transmission of caderas very little

Fig. 8.—*Trypanosoma dimorphon* (Gambian Horse disease) in blood of mouse. One cell is dividing. Note the absence of a free flagellum. Magnification 1,500 times.

is known at present. The conveyance by insects is by no means established, although it has been possible to infect horses by stomoxys which had previously fed on infected animals. On the other hand, healthy and infected animals have been kept together or, at most, separated by a fence without the infection spreading.

The results of treatment in caderas have, on the whole, been more favorable than in the case of the other trypanosomiases. Thomas and Breinl obtained with

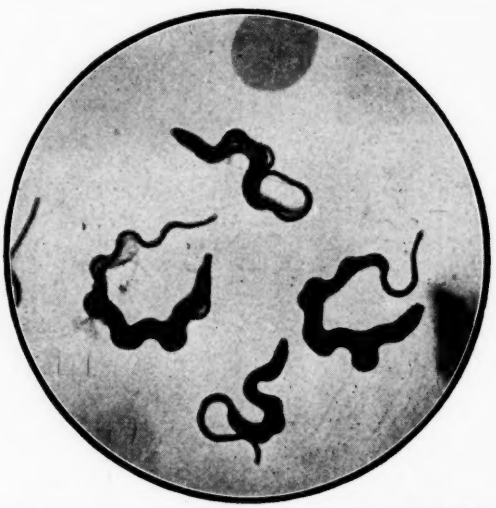

Fig. 10.—*Trypanosoma gambiense* from same preparation as preceding, showing the usual form, some of the cells in process of division. Magnification 1,500 times.

atoxyl cures in rabbit, guinea-pig and rat. Ehrlich and Shiga were able to cure mice by means of their trypan-red. Moreover, previous inoculations with the dye served to prevent infection. Several other dyes are now known which in a single injection will cure infected mice (Mesnil and Nicolle). Human serum is as active against caderas as against nagana. The disease is prolonged in infected mice and rarely a cure is effected.

(To be continued.)

LUPUS VULGARIS OF THE EAR IN RELATION TO ITS LATE RESULTS.*

A. RAVOGLI, M.D.
CINCINNATI.

Lupus vulgaris, the true exponent of the cutaneous tuberculosis, although so well studied and thoroughly known, still deserves consideration. Usually it is a disease of a long and tardy process. It remains for years in the form of small, innocent nodules, which scarcely call the attention of the patient for any treatment, and yet its consequences are very serious, and at times fatal. This prompts me to refer to the history of two cases which have lately come under observation.

CASE REPORTS.

CASE 1.—M. J. T., aged 52, a man of splendid physique, always had good health. No one in his family had ever shown signs of tuberculosis. His children are types of perfect health and vigor.

History.—At the age of 28 he began to notice some little pimples on the lobules of the right auricle. He did not think anything of it and let them go until they began to ulcerate. Other nodules were formed in the concha, which, on ulcerating, began to make their way down into the tissues. He consulted several physicians, who all agreed it was a case of cancer. The patient was greatly discouraged, and for a long time contented himself with a simple medication to keep the ulcerated surface clean.

Examination.—The process, however, kept progressing. When he was first seen, after nineteen years, the auricle had been nearly destroyed. A piece of the upper portion of the helix was ulcerated and hanging down, which was removed and kept for biopsy. The antihelix and the concha were entirely destroyed and the surface was converted into two deep, tuberculous ulcers. One of them, of the size of a half dollar, working backward and up on the squamous and on the mastoid process, showed at the bottom decayed and ulcerated bone. The other ulcer was seated in front and underneath the auditory canal, and with its granulations and the edematous swelling of the tissues, had entirely closed the meatus. Its progress had gone so deep that the auditory function had been totally destroyed, and patient had paralysis of the eyelid and of the facial nerve of the same side. This showed that the tuberculous process had spread deep in the pars petrosa, had destroyed the cavum tympani, and had very likely damaged the labyrinth. From the facial paralysis we can argue that the same process had made its way into the canalis Fallopii, producing pressure on the seventh pair, the facial nerve. This condition became more and more apparent toward the end, when patient could no longer swallow his food, on account of the anastomoses between the comunicans and the nervi palatini descendentes, which are motor ramifications for the muscles of the palate.

Treatment.—When patient was taken under treatment the ulcers were touched up with pure lysol, the granulations were scraped off with the sharp curette, and in a short time the condition of the ear was such as to promise a speedy recovery. The improvement, however, was only illusive, because after some time the ulcer begun to extend upward on the squamous portion of the temporal and backward, with necrosis of the mastoid process. Opening the mastoid cells in a downward direction, the ulcerative process, round in shape, with thick infiltrated edges, showed at the bottom of the ulcer the exposed muscles and the ramifications of the nerves. At this point deglutition could not be effected, the digestion was impaired so much that the patient lost over 40 pounds. He became very weak, and the end came very likely from the implication of the nervus vagus in the ulcerative process.

In this case there were used also the Finsen light, *x*-rays, and every device which could have been suggested in the case in order to stop the tubercular process, but nothing succeeded in doing so. While the patient was under my treatment, over one year, he never had any fever or showed symptoms of infection in the general system. The symptoms were only of local origin, consisting in paralysis and in a burning and boring pain, which was especially troublesome at night. The application of the *x*-rays only had a beneficial effect on this continuous pain.

CASE 2.—F. W. H., farmer, aged 26, of splendid physique, had always enjoyed good health.

History.—In his mother's family some members had died with tuberculosis. He was in Colorado camping for some time in order to attend one of his family who was affected with tuberculosis. He has never shown a sign of pulmonary trouble, nor has his family. The climate and the open air treatment proved beneficial to his relative, and he returned to his Kentucky farm. He claims that his trouble started from a wound

Fig. 1.—Tubercular ulcer of the ear from lupus of 18 years' standing.

produced by a corn cob striking his right ear in 1886. The wound ulcerated, for which he sought medical attendance. The auricula was scraped, and after the operation erysipelas set in, which caused loss of tissue. He has received medical attention off and on, as he was discouraged by the stubbornness of his affliction. Some two years ago he called on me for treatment. The auricula had been totally lost and the whole surface was ulcerated. Indeed, he called on me more for a patch of whitish nodules in the form of tuberculosis lupoides affecting the zygomatic region, extending to the internal angle of the right eye. The tuberculous ulcer of the ear was for him of a secondary importance. The tuberculous nodules of the face were scraped off and cauterized with pure lysol, and with this method was obtained a regular superficial scar, which is scarcely visible.

Treatment.—The ulcer of the ear was treated with the light treatment of the Lortét and Genou appliance. In the beginning

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

it did much good, so much as to make me hope for a perfect recovery. The surface, however, began to ulcerate again, and the treatment was discarded. The *x*-ray treatment came next, which did not produce any beneficial effect. For a while I have limited myself to touching the new tuberculous ulcers with pure lysol, and dressing the surface with sublimate gauze. The lysol has often been substituted by iodoglycerin.* In this way the tuberculous ulcers have been kept in check and healed up. When the best cicatrix had been obtained, suddenly under the scales small miliariform tuberculous ulcers formed, round or oval shaped, with a yellowish bottom, and

Fig. 2.—Tuberculous infiltration free from limits.

with a tendency to spread. The ulcerated surface is somewhat triangular in shape, with the apex at the place of the destroyed lobulus, and with the base on the squamous portion of the temporal bone (Fig. 1). One of the angles reaches the mastoid process, the other the zygomatic. The bony substance of the squamous portion of the temporal has been denuded and has fallen in a superficial necrosis, which has sloughed off and is at present cicatrized. The internal ear has not been disturbed and a small piece of cartilage still remains, forming the meatus of the auditory canal. The hearing is maintained per-

Fig. 3.—Lupus tubercle in the derma.

fect, so that if a little secretion stops the canal he requests to have it removed on account of closing his ear.

ETIOLOGY.

In both cases I examined the secretion of the ulcer by smear preparation, and have been able at times to see the presence of the tubercle bacilli. Of its presence there could never be any doubt, after seeing the lupoid reproduction on the patient's face in Case 2, and not long ago the formation of a warty production on the back of his left hand, which was a clear case of tuberculosis verrucosa. It was easily destroyed by cauterization with pure *lysol*, leaving only a superficial scar.

It seems that the tubercle bacillus which does not find a good ground for its development in the derma, when it affects loose connective tissues, or its equivalent, as fasciæ, bones, etc., takes on great activity. The derma with its resistant stroma and elastic fibers, more easily surrounds and encapsules the tubercle bacillus, which sometimes remains a long time in the skin in a dormant state without producing infection. The bacillus may remain concealed for a period of years in the scars of lupus, as a potentiality without causing trouble. But the time comes when, waking out of this dormant stage, it develops tubercles with the reproduction of the dreadful process and with destructive consequences.

The etiologic origin of lupus vulgaris was established from the discovery by Koch of the bacillus tuberculosis. The histopathologic nature of lupus to attack connective tissues was at first revealed by Auspitz,[1] and confirmed by Virchow,[2] so much so that the question seemed set-

Fig. 4.—Tuberculous process, invading Haversian canal, from a decayed scale of bone.

tled forever. When Schüppel found the giant cells in tubercular glands, and Bizzozero[3] and Friedland[4] demonstrated their presence in lupus of the skin, then the microscopic anatomy of this disease took a new direction. Lang[5] thought that the diagnosis of lupus rested on the finding of the giant cells. But he also called attention to a proliferation of the connective elements of the blood and lymph vessels forming meshes around the cellular infiltration of the tubercle.

The interest, however, in the part which the connective tissues play in the process has remained, and I believe that to them is due the different reaction of the skin in the different morbid types of cutaneous tuberculosis. Since the experiments of Krompecker and Zimmermann[6] proving equal virulency of the tubercle bacilli in a rapidly developing case of lung tuberculosis, and in a chronic tuberculous process of the bones, we can

* This consists of:

Iodin pure	gr. x	65
Potassium iodid	3ss	2
Glycerin	3vi	25

Mix. Use externally.

1. "Ueber die Zelleninfiltrationen der Lederhaut bei Lupus," Wien. med. Jahrb., 1864.
2. "Geschwülste," vol. II, quoted by Lang.
3. "Tuberculose der Haut," Centrbl. f. d. med. Wiss., 1873.
4. "Untersuchungen über Lupus," Virchow, Arch., lx.
5. "Zur Histologie des Lupus," Vierteljahr, 1875.
6. Centrlbl. f. Bact., 1903, xxxiii, p. 580.

not attribute the difference in the forms of cutaneous tuberculosis to a different intensity of virulence of the bacillus. The difference of clinical pictures may be also attributable, according to Pick,[7] to the difference in the nutrient soil, rather than in the source of the causative factor. From my observations I infer that so long as lupus remains in the domains of the thick structure of the derma its progress is greatly restrained. When lupus has affected the loose connective tissues of the skin, then it is no longer under any control, and in a short time is reproduced in a nodular or in a diffused form, which represents miliary tuberculosis of internal organs.

PATHOLOGY.

The infiltrating cells which form the lupus nodules, by faulty process of their protoplasma have no longer the power to appropriate nutritious materials carried by the blood, and die, forming foci of degeneration. Unna[8] names this kind lupus radians, when in consequence of the pressure on the tissues from free foci, degenerative changes soon take place. Tubercular infiltration does not form nodules any more, but spreads in all directions into the spaces of the tissues. Figure 2 gives a good idea of the irregular infiltration, while Figure 3 shows lupus nodules surrounded by collagenous fibers. In the first, all presence of plasmom is lost, and to plasmom

Fig. 5.—Papillary proliferation from lupus infiltration.

is due the faculty of encapsuling tuberculous infiltration. In the other the infiltration is guarded by the connective tissues. In cases of radians lupus the tubercle bacilli act with more intensity and after the dissolution of the plasmom easily destroy the other tissues. Figure 1 clearly shows the spreading of tubercular infiltration around an Haversian canal. There is no plasmom to restrain the diffusion of the tuberculous process.

It seems that the intensity of the virulence of the tubercle bacilli is prevented from spreading by the solid structure of the derma. Figure 5 has been taken from a vegetating focus of lupus, growing on the nasal angle of an inferior eyelid in the patient in Case 2. It was the result of an accidental inoculation. Plasma cells are thickly disposed in the form of a wall around the foci of the infiltrating lupus. They are lined in the papillary layer around the blood vessels and down in the thickness of the derma. It seems they are a protection to the blood vessels which are not compressed by the infiltrating process, and are spared from destruction. The plasma cells are mostly made by the connective tissue corpuscles, and by the collagenous fibers. The elastic fibers are also well maintained between the lines of the plasma cells.

The tuberculous infiltration when out of control from the plasma cells spreads and invades cartilage and bone. In Figures 6 and 7 the line of tuberculous infiltration is clearly shown, invading the cartilage whose cells soon die. In the same way as shown in Figure 4 the bone

Fig. 6.—Tuberculous infiltration invading cartilage cells.

cells invaded by the tuberculous infiltration are converted into a tuberculous mass. The degenerative process soon takes place and tuberculous ulcers with necrotic bottoms result in the bones and in the cartilages.

When the tuberculous process has reached the subcutaneous tissue, it forms large nodes, or tuberculous gummata. It finds also an easy way to spread in every direction and attacks fasciæ, periosteum, and the bone is no obstacle to its invading virulence.

Fig. 7.—Tuberculous process invading cartilage.

This kind of lupus causes an acute serofibrinous inflammation, which causes the tissues to be imbibed with lymph, and the quick spreading of the process. In one of my cases a lady who has been afflicted for many years with lupus of the face and arms, now healed, has recently shown tuberculous nodules on her left foot and leg, with hard persistent edema of the whole foot and toes. The nodules made their appearance as red round patches of the size of a dime or greater, are swollen and

7. "Tumorlike Forms of Tuberculosis of the Skin," Transl. by Klotz, Journ. Cut. Dis., July, 1904.
8. "Die Histopatologie der Hautkrankheiten," p. 579.

exceedingly painful. In a short time they appear soft, showing fluctuation. When opened, a scanty bloody serum issues, together with adherent masses of necrotic tissues. In the smear preparation of this serum, tubercle bacilli were present several times. It seems that a degenerative condition affects tissues and cells, causing a fluidification of the substance of the cells. The lymph spaces filled with abundant serum offer good channels for the spreading of the process as interstitial edema. The serum which infiltrates the tissues is soon coagulated and the process through it spreads to the deep structures. The virulence of the tuberculous infection causes the acute inflammation and the prompt fluidification of the infiltrating elements, and the tissues are converted into necrotic masses. The edema, which forms lupus tumidus, is remarkable on account of its development and of its persistency. Whenever it is present it shows that lupus is of rather a severe nature.

Indeed, any case of lupus has to be considered as a serious affection, and has to be treated to the end. The cases referred to had been dragged along for years without accomplishing any permanent curative result. The disease which at first looked like one of little importance, has taken such proportions as not only to mutilate the patient, but to menace life. Prognosis, therefore, requires great seriousness, and the patient must realize that he has to be cured in the beginning of the disease, because later on, when it has spread, cure will be more difficult, or probably impossible.

TREATMENT.

In reference to the treatment, I have used every possible means, but the results have been discouraging. The application of Finsen light with Lortét and Genou apparatus, in the first case was of no benefit, in the second case it proved at first beneficial. The process, however, took more severe proportions, so much so that I was obliged to change treatment. The exposure to *x*-ray proved beneficial in the first case, so that it had caused nearly all ulcerations to heal, but it was unsuccessful in the second. In the first case the *x*-ray treatment had stopped the continuous pain, in the depth of the ear, in the second it irritated and caused so much discomfort that its use had to be stopped. In both cases I had moments of hope, the process seemed conquered and recovery assured. Suddenly new ulcerations were formed, undermining the bones. In the first case the process had gone too deep and scraping was not advisable. In the second case, in which the process was more superficial, the whole surface was scraped off and covered with skin grafts. For a while it seemed to be healing, but after a time new ulcers were formed in the center and in the periphery, which soon left the ulcerated surface in the former condition.

The best results so far have been obtained from the applications of pure lysol. The new ulcers are touched up with a piece of cotton dipped in lysol; the pain is not excessive. It produces a coagulation of the serum of the tissues, so as to form a hard, whitish escara, which falling out leaves a healthy tissue which soon cicatrizes. In the case of diffused lupus of the foot, I have obtained the best results from lysol. When the nodules appear, I open them and remove their contents, and insert a piece of cotton saturated in lysol. In a short time the nodules are brought to recovery.

DISCUSSION.

DR. M. L. HEIDINGSFELD, Cincinnati, asked if the tuberculin test had been applied in the cases reported by Dr. Ravogli. Dr. Heidingsfeld has resorted to this test in many cases with the most satisfactory results, and he places great reliance on it. He can recall cases which he regarded as tuberculous, and which on histologic examination proved to be something else after the tuberculin test had proved negative. In certain superficial forms of epithelioma which have a tendency to progress very insidiously, the resemblance to lupus is very close, and the injection of tuberculin is a valuable diagnostic aid. Many cases, he said, are doubtless reported and recorded as tuberculosis which would be given an entirely different interpretation if tuberculin were more generally employed. Of the value of the Finsen rays, Dr. Heidingsfeld said that the poor results often attributed to that method of treatment may be more justly ascribed to defective technic. A 5-ampere lamp can not be expected to be as efficacious as a 50-ampere lamp, and he does not believe that anything under a 25-ampere lamp can be depended on to give any results.

DR. A. RAVOGLI, Cincinnati, said that he has given tuberculin a prolonged trial in tuberculous affections of the skin. He began with the older tuberculin, and afterwards used the tuberculin T. R., and his experience with both of these preparations has been very discouraging, as he has seen serious results following the injections. He mentioned the case of a woman with lupus erythematosus who was given an injection of tuberculin T. R., which was followed by a high temperature and marked local reaction. Subsequently she had a relapsing fever, and died with the symptoms of pulmonary tuberculosis within a month or two. He also mentioned another case which he saw in consultation, in which an injection of von Ruck's preparation of tuberculin had been made. At the site of the injection a tuberculous ulcer developed, which subsequently involved the neighboring glands, and the patient died in the course of a few weeks. Since then, Dr. Ravogli said, he has entirely abandoned the use of tuberculin in spite of some fairly satisfactory results with the older preparation, which he published a number of years ago in the Chicago *Clinic*. In his work in the future he will refuse to resort to it unless he can be convinced that it will not injure the health of his patients. The diagnosis of tuberculous affections of the skin can be made by inoculations in lower animals without resorting to tuberculin. The method in which the lesion extends, its clinical appearance and anatomic and pathologic features usually furnish sufficient data on which to base the diagnosis.

ILLUSTRATING THE ARTICLE OF DRS. GAYLORD AND CLOWES.

Fig. 1.—Microphotograph. × 81.6. (Low power.) Original slide of Dr. Loeb showing character of primary sarcoma of the thyroid in the second Chicago rat. This slide is made from a recurrent mass which developed on the site of the primary tumor. To the left sarcoma tissue which extends into and subdivides a large cyst containing coagulated serum.

EVIDENCES OF INFECTED CAGES AS THE SOURCE OF SPONTANEOUS CANCER DEVELOPING AMONG SMALL CAGED ANIMALS.*

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The employment of small animals suffering from cancer for purposes of laboratory experimentation has brought to light the fact that the endemic occurrence of cancer in animals is a not uncommon phenomenon. The classical case of carcinoma in rats reported by Hanau[1] and the more recent observation of endemic occurrence of carcinoma of the breast in mice by Borrel[2] are well known. Michaelis[3] has likewise recently reported the finding in the course of one year in a single cage of 5 cases of carcinoma in the mouse. Loeb[4] refers to an article by Cooper, in the *Veterinarian*, on the endemic occurrence of cancer of the parotid and submaxillary glands in the cow, and has himself reported the endemic occurrence of epithelioma of the inner angle of the eye in cattle observed in the Chicago stockyards.

Fig. 2.—× 81.6. (Low power.) Transplantation tumor (Dr. Loeb) after 19 days from primary tumor shown in Fig. 1, showing tendency to cyst formation.

Fig. 4.—× 81.6. (Low power). Section of primary sarcoma of the thyroid in Buffalo Rat 3, showing the sarcoma tissue below extending upward and subdividing large cyst containing disintegrating sarcoma cells and serum; to be compared with microphotograph. Fig. 1, from Dr. Loeb's primary tumor.

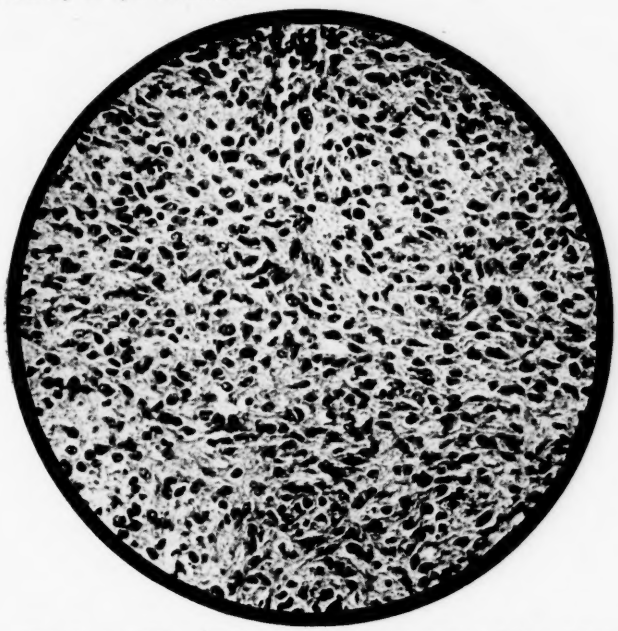

Fig. 3.—× 280. (High power.) From section of tumor transplanted from the same source by Dr. Loeb while in Buffalo. This indicates the characteristics of the tumors developing in the rats which occupied the cages during the period of Dr. Loeb's stay at the New York State Cancer Laboratory.

Through the kindness of Dr. Loeb we are able to present three microphotographs. Figures 1, 2, and 3, taken from the second primary cystic sarcoma of the thyroid found in Chicago, from the small intraperitoneal transplanted nodule made by him before coming to Buffalo and a high power microphotograph of a transplanted tumor made in Buffalo from the same source. These when compared with Figures 4, 5 and 6 from similar primary and transplanted tumors from our own Rat B clearly show the striking similarity of these tumors, both primary and transplanted.

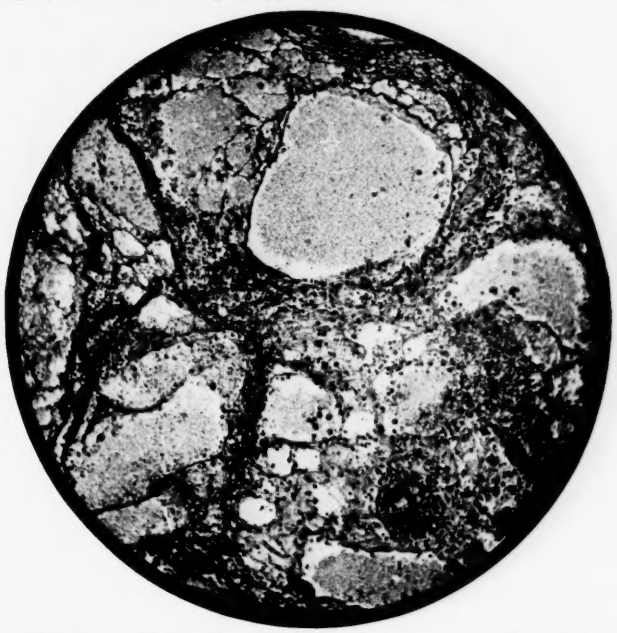

Fig. 5.—× 81.6. (Low power.) From cystic portion of tumor transplanted from Rat 3, third generation, showing tendency to cyst formation persisting in transplanted tumors; to be compared with Figure 2 of Dr. Loeb's tumors.

* From the New York State Cancer Laboratory.

1. Fortschr. d. Med., 1889, vii.
2. Ann. de l'Inst. Pasteur, 1903, xvii.
3. Ztschr. f. Krebsforschung, 1906, iv, No. 1.
4. Centrbl. f. Bakt., 1904, xxxvii.

The endemic occurrence of malignant tumors in animals, especially laboratory animals which are confined in cages, and whose diet is controlled, and which are under much closer supervision than even the animals of the field, renders observations in regard to the infectiousness of cancer among these animals of much greater significance than many of the similar observations applying to

Fig. 6.—× 280. (High power.) Sarcoma tissue from transplanted tumor, first generation from Buffalo Rat 3; to be compared with Figure 3 of Dr. Loeb's tumor.

cancer houses and the endemic occurrence of cancer among human beings.

In the light of these interesting observations, the recently reported discovery of the endemic occurrence of cancer of the thyroid in the brook trout hatcheries in

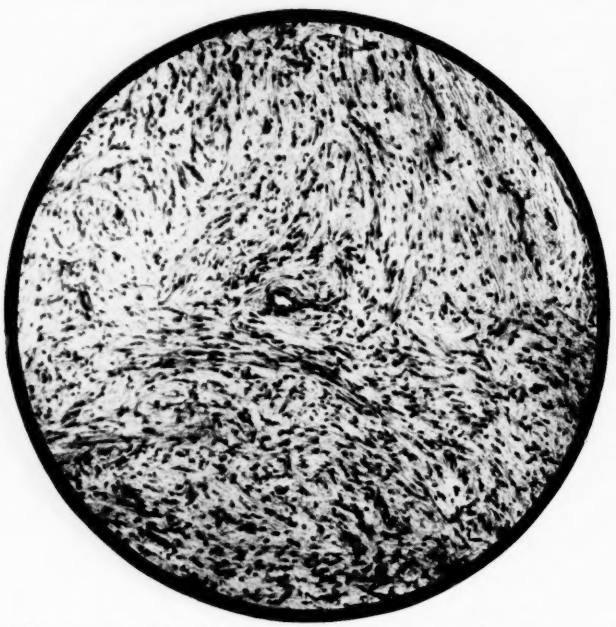

Fig. 7.—× 81.6. (Low power.) Section of primary tumor of Rat 1, fibrosarcoma on abdominal aspect. First rat discovered in cage in 1904.

Germany by Pick[5] is of the greatest significance. Pick finds that cancer of the thyroid in the various varieties of trout occurs in certain hatcheries in a percentage varying from 2 to 7, and he refers to an epidemic of this affection reported by Bonnet[6] which occurred in the fish hatchery at Torbole on the Gardesee, which, between the middle of February and the end of June, destroyed no less than 3,000 fish. Pick's investigations show that certain hatcheries are entirely free from this affection; that when the fish are affected the disease is confined to

Fig. 8.—× 280. (High power). Primary tumor of rat 2, showing fibrous character of primary tumor.

individual tanks or pools in which the fish are kept; that wild fish introduced into these ponds for the purpose of replenishing the stock acquire the disease, which observation, to his mind, obviates the necessity of considering heredity an important factor in the development of the

Fig. 9.—× 280. (High power.) Buffalo Rat 2. Section of metastasis in median fissure of liver showing sarcomatous character of tumor and the tendency to formation of intracellular fibrous substance.

infection. His observations establish beyond doubt the nature of the affection, which is true carcinoma, and he concludes that the endemic occurrence of cancer among

5. Vortrag gehalten i. d. Berl. med. Gesell., 1905, October.

6. Bayerische Fischereiztg. München, 1883, No. 6, p. 79, *et seq.*

trout only in certain tanks of hatcheries indicates that the water of these tanks contains the agent which is the cause of the disease. This occurrence he compares with the drinking water origin of struma as it exists in Switzerland, and concludes that the agent, whether chemical, bacterial or protozoon, must be present in the water in which these fish have been kept. During the past two years cases of endemic occurrence of tumors in small animals confined in cages have come under our observation which strongly indicate that cages under given conditions can become infected.

In the case of the sarcoma rats about to be reported, the manner in which the cage became infected would appear to be fairly obvious. The facts pertaining to this observation are as follows: In 1904, Loeb[4] describes the endemic occurrence of primary cystic sarcoma of the thyroid in rats confined in a group of cages in the laboratory of the Chicago Policlinic. Th rats in question were found in three or four closely arranged cages which were used to confine a number of rats which were presumably the offspring of a few males and females which had originally been brought into the laboratory. The rats were changed about from cage to cage during the period referred to. In January, 1900, a case of cystic sarcoma of the thyroid was found in these cages. This

Fig. 10.—Buffalo Rat 1. Large fibrosarcoma of abdominal aspect. Found in cage, July, 1904, which had contained Dr. Loeb's rats in 1903.

tumor was transplantable. In August, 1901, a second rat with cystic sarcoma of the thyroid was found in these cages. This was also transplantable. In the autumn of 1903, a third case of cystic sarcoma of the thyroid was found in these cages and this, in the hands of Dr. Herzog, who reported the fact, did not yield results on transplantation.

The structure of these tumors showed but slight differences. Loeb called attention to the fact that the great similarity of the tumors and the fact that they occurred in a relatively small number of rats, which had all at one time or another, occupied the same cage, indicated that the tumors must owe their origin to a common source. Inasmuch as the rats were all descendants of common ancestors, he was unable to exclude the possibility of the endemic occurrence of these tumors being due to heredity, but felt that the observation just as strongly indicated the possibility of a common source of infection in the cages.

These three cystic sarcomas of the thyroid proved on microscopic examination to possess practically identical histological characteristics. These characteristics in the first and second tumor persisted on transplantation. The clinical course of the disease in inoculated rats was the same. They grew rapidly on inoculation and in the later stages developed cysts of considerable size which contained a straw-colored serum which coagulated on exposure to the air. Areas of necrosis were not infrequent in both primary and transplanted tumors. Loeb demonstrated that the inoculated tumors were derived from implanted cells and that the tumor was a true sarcoma and not an infectious granuloma, in the sense which Bashford[7] has recently employed in attempting to show that the round-celled sarcoma of Sticker[8] was not a true tumor.[9] Dr. Loeb demonstrated sections of both the primary tumors and the inoculation tumors on various occasions before scientific societies and the universal opinion of all pathologists has been that they were true spindle-celled sarcoma.

In the spring of 1902 Dr. Loeb was engaged in the

Fig. 11.—Buffalo Rat 2. Large fibrosarcoma of abdominal aspect. Developed tumor in same cage and was first observed October, 1905.

transplantation of the second tumor and at our invitation came to the State Cancer Laboratory in Buffalo, bringing with him a number of inoculated rats from the second tumor. This tumor had at that time been transplanted through a number of generations. For his accommodation two large cages and a number of smaller ones were made. During the course of his stay in Buffalo these cages all contained at one time or the

7. Scientific Reports on the Investigations of the Imperial Cancer Research Fund, 1905, part 2.

8. Ztschr. f. Krebsforschung, 1904, i, No. 5.

9. In this connection it may be stated that Ewing and Beebe have recently investigated a similar round-celled sarcoma in the dog to that of Sticker and have arrived at the conclusion that Bashford's interpretation is not correct and that both of these tumors are round-celled sarcomas.

other, numbers of successfully inoculated rats. In October, 1902, Dr. Loeb went to Montreal, taking his rats with him. Some inoculated rats were left in the cages but none of these developed tumors, and by December, 1902, the remainder were disposed of. *During the period from December, 1902, until the summer of 1903, there were no rats in the laboratory.* The smaller cages were placed in the hot-air sterilizer and sterilized; the two larger, being too bulky for this procedure, were brushed out and stored in the back part of the animal room, where they remained unused until the summer of 1903, when they were employed for a number of rats brought into the laboratory for purposes of study other than tumor implantation. These rats were killed at various periods and on the conclusion of the work perhaps a dozen rats were left in the two large cages; in one cage 4 rats, in the other 6 or 8. This entire lot of rats was obtained from a totally distinct source from those which Dr. Loeb had employed.

In July, 1904, in one of the two large cages, which had not been subjected to sterilization after Dr. Loeb's departure, and which at that time contained 4 rats, a rat was discovered with a large tumor on the right abdominal aspect and a smaller tumor adjacent to it in the axillary region, about the size of a hazelnut. The large tumor was movable, dense, and about the size of an English walnut. The rat appeared to be in good condition and on July 12, the large tumor was removed by operation. It proved on section to be a slow-growing fibrosarcoma. Portions of the tumor were inoculated into a number of rats but none of these subsequently developed tumors. There was no local recurrence of the tumor at the site of operation and on the death of the rat some months later, the smaller nodule in the axilla was found not to have changed in size. The remaining rats were removed from both cages.

Eight rats were now placed in the cage in which the tumor had appeared from an entirely new source. In the other cage of similar size were placed 6 or 8 rats from the same source as the rats now placed in the infected cage. Both cages were now removed to the basement. They had previously been in the animal room of the laboratory, which is on the fourth floor. The conditions in the basement were not essentially different, except that the room was not so well heated and possibly more damp. The rats remained undisturbed in these cages in the basement of the laboratory from August, 1904, until October, 1905. At that time 3 adult rats were in the cage in which the first tumor had been found. They were the survivors of the 8 which had been originally introduced into the cage in August, 1904, 5 having died of intercurrent disease (tuberculosis) one three-quarters grown female which had obviously been born in the cage and a litter of 10 half-grown rats, not over 6 months old, all of these the offspring of the adult rats originally placed in the cage. Of the 3 adult rats, 2 were males, 1 a female. The two males were found on examination each to have a large tumor. One of these had a tumor located on the right side of the abdominal aspect directly behind the right fore-leg. It was about the size of a fifty-cent piece, 1 cm. in thickness. The other male adult rat possessed a tumor the size of a walnut in the thyroid region. This tumor, because of its great size, embarrassed the respiration of the rat and it died, October 6. This rat is known as Buffalo Rat A. The notes of the autopsy are as follows:

The tumor occupies the thyroid region and extends from the chin to the sternum. It is nearly spherical. It measures 35 mm. in the long axis by 45 in the transverse axis. The skin over the tumor is thin, of bluish appearance, but everywhere perfectly movable. The tumor is fixed at its base, is nowhere adherent except in the median line in the deeper portion of the neck. The greatest thickness of the tumor is 35 mm. its weight is 19.8 gm. On dissecting up the tumor it is found to be distinctly encapsulated, easily dissected from the skin, with areas of deep purple mottling on its superior surface and injected blood vessels in the capsule. Toward the base the tumor is of lighter color and greater consistence. It is easily dissected down to a point where its anatomic relations correspond with the thyroid. There is no evident compression of the trachea.

On opening the abdominal cavity the mesentery is found to contain a considerable amount of fat. Intestines are collapsed and pale. The liver is greatly enlarged and presents a typical nutmeg appearance.

On examination of the lungs the lower lobe on the left side is found to be in a state of consolidation, with mottlings of deep red, on which are distributed well defined areas of pale white. The upper middle lobe on the right side shows the same condition. The left adrenal is enlarged, hyperemic and nodular in appearance, is very friable on removal. The kidney is soft and large. The right adrenal is small and of normal appearance. Kidneys on both sides present the same appearance, somewhat enlarged, dark red, granular surface.

The liver on section presents the characteristics of high-grade fatty degeneration and cyanosis, typical nutmeg appearance. The spleen and pancreas appear to be of normal size and appearance. The retro-bronchial lymph nodes are not enlarged, the mesenteric lymph nodes are also not enlarged. The enlarged left adrenal on section is of dark red color, friable and soft.

On opening the tumor the left half is found to consist of a thick-walled cyst containing clear, straw-colored fluid which, on exposure to the air, coagulated. The wall of the cyst is pinkish white, the interior smooth and glistening. The right lobe of the tumor consists of friable, pinkish white tissue, with large areas of hemorrhage. The entire tumor, after removing specimens for microscopic examination, was ground up with salt solution and injected into rats.

Histologic examination of this tumor shows it to be a spindle-celled sarcoma, containing frequent cysts. Here and there in the primary tumor are remnants of thyroid epithelium, arranged in the form of irregular nests, but showing no evidence of proliferation. The typical sarcomatous structure is well-defined at the margins of the large cystic cavity, which forms the bulk of the tumor. After removing sufficient material for hardening, the remainder of the tumor was broken up into small pieces, under aseptic conditions and used to inoculate 10 white rats and 6 parti-colored rats, by placing small pieces of the tumor beneath the skin with a sterile trocar. Four rats were also inoculated with the serum obtained from the large cystic cavity. The result of the first attempts at inoculation yielded 4 tumors, all in the white rats, none appearing in the parti-colored; 2 of these in white rats inoculated with fragments of tumor through a trocar, and 2 from the 4 rats inoculated with the serum of the cyst cavity.

From the 4 tumors thus obtained the tumor has now been carried to the tenth generation of successful transplantation. In the course of inoculation we have had one or two tumors develop in the parti-colored rats, and although the percentage of successful inoculations is not as yet very high, the virulence of the tumor and the percentage of successful inoculations, appear to be increasing.

Sections from the tumors obtained by implantation present the histologic characteristics of the primary tumor. These tumors grow to great size and in the later days of the disease rapidly form cysts, by taking on large

quantities of serum. The behavior of these tumors is in every way like the implanted tumors which Dr. Loeb had in the laboratory in the spring and summer of 1902. The histologic characteristics of this tumor both in the primary and implanted tumors, differ from Dr. Loeb's primary and his secondary implantations, only in minor details. They show the same characteristic structure of sarcoma tissue into a network surrounding the cysts. The only point of difference is an occasional appearance in the arrangement of the cells which suggests alveolar sarcoma, but most of the tumors are of the simple spindle-celled variety.

The second rat, Buffalo Rat B, found in the cage in October, 1905, was in good condition. On October 23 this rat was subjected to an operation at which the tumor was removed. At the operation it was found that the tumor extended beyond the median line. There was a small nodule detached from the tumor on the thoracic aspect and this was left *in situ,* after being cut in several directions with sterile shears. The tumor weighed 19.8 grams. It presented the macroscopic appearance of a fibrosarcoma. It was transplanted into 20 white rats. On section it proved to be a fibrosarcoma, identical in appearance with the tumor in the first rat discovered in the cage in the summer of 1904. Attempts at transplantation were all unsuccessful, no tumors developing in the 20 rats inoculated. The rat lived until January 10, 1906, when it was found dead in its cage.

The autopsy showed that the nodule which was left in place at the operation in October had increased in size, had infiltrated the surrounding tissues, and proved on section to be somewhat softer than when incised at the time of operation. The liver showed marked evidence of fatty degeneration. In the median fissure between the right and left lobes was a large metastasis of irregular shape, somewhat larger than a hazelnut. It involved the structure of the liver and on section was pinkish white in color. On elevating the liver numerous mesenteric metastases, one somewhat larger than a pea, and numerous metastases scattered over the peritoneal surface of the intestines, spleen and mesentery, were found. The tumor material and organs of the animal appeared to be badly contaminated and transplantation experiments were not undertaken. Histologic sections of the metastases of this tumor showed that it had assumed the characteristics of a rapidly growing spindle-celled sarcoma.

During the period in which these 3 tumors were found in one cage in the State Laboratory, no tumors appeared in the control cage, in which there were kept approximately an equal number of rats during the entire period, nor in the other cages in the laboratory, although during the greater part of the time, there were no less than 100 rats in various cages. No tumors developed in the smaller cages which were used by Dr. Loeb, but which were subsequently sterilized.

Sarcoma of the thyroid in the rat appears to be a rare affection. We have been unable to find reports of this disease except in the case of the 3 primary tumors observed by Dr. Loeb. For the purpose of ascertaining how frequent this affection might be, there was sent from this laboratory to 325 breeders of small animals in the United States, a postal card on which was printed a photograph of Rat A, with the inquiry as to whether or not these dealers had observed any case of a rat with a similar tumor in the neck and offering $25 reward for each animal so affected. The inquiry was also made as to how many white rats the dealer had observed or handled during the preceding 3 years. Answers were received from 57 dealers, who reported having had approximately 20,000 white rats in their establishments. All but one or two stated they had never seen anything like the photograph of Rat A, and none were able to give a description which clearly indicated that they had observed anything but abscesses or indefinite swellings in other regions in their animals.

A summary of the facts in this observation is as follows: There were 7 rats in all which survived in the infected cage. In the first instance 4 rats remained in the cage for a period somewhat over a year. One of these developed a large fibrosarcoma on the abdominal aspect. In the second case 3 rats survived in the cage a period of 14 months. Two of them developed sarcomas, one, Rat A, a primary sarcoma of the thyroid, Rat B a fibrosarcoma on the abdominal aspect. The histologic findings showed that the first fibrosarcoma and the second fibrosarcoma were neither transplantable. They presented the same histologic characteristics. The first one was totally removed and did not recur. In the second a nodule was left *in situ* and the animal died with abundant metastases of rapidly-growing spindle celled sarcoma. These tumors must then be looked on as malignant tumors, although they were not transplantable and the first one did not recur. The thyroid tumor presents all the essential characteristics of Dr. Loeb's sarcoma of the thyroid, implanted rats from which had previously occupied this cage.

It would be natural to attempt to separate the two fibrosarcomas from the transplantable and rapidly-growing sarcoma of the thyroid, and we should have expressed a possible doubt that they were derived from the same form of contagion, were it not for the recent experiments of Ehrlich and Apolant, which have demonstrated beyond doubt that even a carcinoma can, under given conditions, lead to the development of a sarcoma in connective tissue immediately adjacent to it. For this reason it would seem an unnecessary refinement to consider that the 3 cases of sarcoma, although in different regions in the animal and somewhat different in histologic details and experimental characteristics, were attributable to other than a common source. In the light of Borrel's[2] observations on the endemic occurrence of carcinoma in mice, in which he succeeded in tracing the origin of 20 mouse tumors to one cage, it would seem that the source of infection in this case is vested in the cage in which these rats were contained. That we may positively exclude heredity, is owing to the fact that the rats which occupied the cage from 1903 to 1904 were derived from a distinct source in a widely distant city from the rats which occupied the cage from 1904 to 1905. That local environment is not the essential factor is shown by the fact that the cage occupied space in the animal room on the fourth floor of the building from 1903 to 1904; from 1904 to 1905 in the basement of the laboratory.

The most logical explanation of the manner in which this cage became infected with the contagion of sarcoma, is found in the fact that it was used in 1902 by Dr. Loeb, who kept in it at that time rats inoculated with the second cystic sarcoma of the thyroid discovered in Chicago. It is to be noted that a period of 3 years elapsed from the time of its employment by Dr. Loeb to the development of the primary cystic sarcoma of the thyroid in 1905. From this it would appear that the contagion of sarcoma in the rat is extremely persistent as to time, extending over a period not less than one-third the life of the rat.

It is of interest to note that two of the three primary sarcomas of the thyroid in Chicago were first detected in the summer or autumn; that all three of our rat tumors were likewise detected during the summer or

autumn, and that in both cases a period of approximately one year intervened between the development of the different tumors. From this it seems probable that the incubation period, or the period in which a rat must be exposed to the contagion, must extend over a number of months. Our cage at present contains a number of rats which have been undisturbed in it since October, 1905. To these have also been added a number of rats during the past month. The conditions of the cage are unchanged. These rats have been obtained from another source distinct from that of any of the rats thus far employed and a further report will be made after sufficient time has elapsed to make it probable that tumors will or will not develop.

Our second observation relates to the endemic occurrence of cancer among mice in the establishment of a dealer who has been engaged in the raising of these animals for several years, in Springfield, Ohio. In view of the completeness of the data placed at our disposal, we consider that this case affords the most striking illustration of cage infection thus far reported.

Fig. 12.—Buffalo Rat 2, showing infiltration at site of primary tumor following operation and large metastasis in median fissure of liver.

One of us visited the establishment in question June 8, 1906, in the company of Dr. Rand, of Springfield, who heard the entire statement made by Mr. Landes, the owner of the establishment and a man of intelligence. The statement which he gave us regarding the occurrence of these tumors, many of which came under our own personal observation, appeared to be perfectly logical and entirely free from discrepancies. In the course of the previous year Mr. Landes had sent this laboratory six white mice with spontaneous tumors, which proved on microscopic examination to be adenocarcinomata of the breast. They were all in females and all located on the abdominal aspect. We found on inquiry that Mr. Landes recognized the fact that the source of these tumors was one old cage, built of wood, one end of which was screened off with netting. He stated that the cage was 3 years old and that it had contained for 3 years an average of about 100 old mice. He estimated that these mice bred to such an extent that he was able to get between one and two thousand young ones out of this cage, annually.

The history of this cage is as follows: It was built in July, 1903, at his place of business, which was then at the corner of Shafer and Columbia Streets, 2½ miles distant from its present location. It was kept in a barn, the boards of which were poorly matched, and the place was cold and windy in winter. It remained nearly a year in this barn and contained during this period about 100 mice. During the course of the winter he found one or two mice with tumors in the cage. In April, 1904, he moved to the corner of Light and Cedar Streets, two or three squares from the first location, and the cage was kept in a large coal shed, which was warm and comfortable. It remained from April to November, 1904, in this locality and during that period he removed from the cage 25 to 30 mice with tumors. In November, 1904, he moved to his present location, 2½ miles distant from the first two mentioned. Before the cage was removed from Light and Cedar Streets he observed 12 mice at one time with tumors and for the purpose of ridding himself of this unfortunate development of tumors, he decided to change entirely the stock in the cage. All the mice which had occupied the cage were removed and 12 adult, healthy mice, 10 females and 2 males, were imported from Washington, D. C., and introduced into the cage, which was placed in a small, detached outhouse, at least 50 feet distant from the present location of the cage. During the course of this winter 3 or 4 tumors developed.

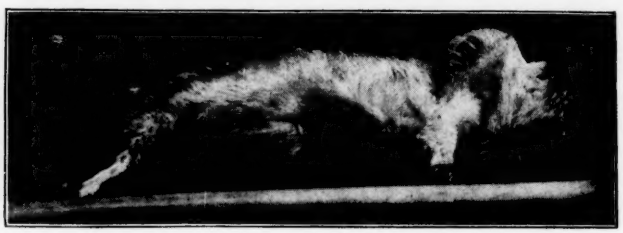

Fig. 13.—Buffalo Rat 3. Primary cystic sarcoma of thyroid developed in cage at the same time with Buffalo Rat 2, October, 1905.

Since the spring of 1905, the cage has been in a large room 30 by 50 feet in size, which was previously a dance hall and it now stands on a table 6 to 7 feet from a window where the conditions of light and ventilation are excellent. It previously stood in a different position in the room about 20 feet from its present location. During the last year he has removed between 25 and 30 mice with tumors from the cage, several of which have been sent to us. Owing to a misunderstanding on his part he had the idea that only tumors between the front legs were what we desired, and those which appeared on the flanks or lateral aspect of the abdominal region, he killed. At the time of my visit one mouse was in the cage with 2 large tumors on the right abdominal aspect. He pointed this out as an example of the kind of tumors which he thought we did not require. He states that he has never seen a tumor on the back of any mouse. He

thinks they were mostly females and in several instances when he examined them as to their sex he found they were females. He has never seen a male with a tumor. The tumors have frequently grown to great size.

Besides the old cage, his establishment contains 12 or 15 other cages of similar construction. One of these is 2 years old, the remainder 1 year old. They are regularly stocked from the old cage. His custom is to remove from the old cage 12 or more females with one or two bucks and place them in the new cages and allow them to remain there until each cage contains approximately 100 mice. The half and three-quarters grown offspring are removed and sold. In the cage which is now 2 years old he has during the past year observed 4 to 6 mice with tumors. So far no tumors have appeared in mice in other cages in the establishment. He remembers having seen one or two tumor mice in some of his old cages in his previous establishments, but these cages were always stocked from the old cage already described, which seems to have been the source of all his operations, and which he referred to as his incubator. The cage was purchased by the laboratory and brought to Buffalo with the mice in it. On reaching the laboratory it was found to contain 3 mice with large tumors. The interior of the cage is dark and damp, incrusted with excreta and presents a generally unhygienic appearance. Examination on the date of sending this manuscript for publication, August 3, shows that the cage contains 28 adults and perhaps twice as many half-grown and young mice. On the floor of the cage is the carcass of a mouse which has apparently been dead some hours with a large tumor on the abdominal aspect. This is ulcerated and shows evidence of having been gnawed. A second mouse with a tumor the size of a large hazelnut protruding between the hind legs and evidently springing from the posterior part of the mammary tissue is also found. The skin over this tumor is adherent and the tumor is evidently far advanced.

Briefly stated, the facts in the above case are as follows: A cage has been discovered in which upwards of 60 spontaneous tumors have occurred in the course of 3 years. The fact that the location of the cage was frequently changed and the stock entirely renewed on at least one occasion without any permanent interference with the production of tumors, makes it apparent that the cage itself was the source of infection.

Besides these observations which point directly to the cage as the source of infection, the endemic occurrence of cancer among mice in breeding establishments is well known and is illustrated to a remarkable degree in our own experience. For instance, from January, 1905, until the present time, this laboratory has had a standing reward of twenty-five dollars for any small animal affected with cancer. This offer, as already stated, was sent to 325 dealers in pet animals. It is possible that many of them have not appreciated the significance of the offer, or have overlooked cases of cancer in their stock, but during this period we have had constant business relations with seven dealers in different parts of the country, from whom we have purchased large numbers of mice, and who, we feel perfectly certain, have fully appreciated the monetary value of cancer mice. From one of these dealers we have received no less than eighteen female mice with cancer of the breast; from a second dealer, five of the same nature and sex; from two other dealers, one each, and from three from whom we have had repeated shipments of mice, none whatsoever. From one of these dealers from whom we have received in the last two years not less than 1,200 normal mice, we learn that he has never, in his own stock, seen an example of cancer of the mouse, but that he was able to recognize the affection was shown by his having secured for us from another dealer a single specimen.

These figures conclusively indicate that in certain breeding establishments cancer in white mice is endemic. The condition of affairs in the breeding establishment of a dealer in Massachusetts is interesting when compared with that of the Springfield dealer where the evidence pointed to a single cage as the source of infection. This Massachusetts dealer has shipped to us, in all, eighteen cancer mice, in lots of nine, four and five, and it is of great interest that the tumors in all of these mice were of relatively the same size. On inquiry as to where the tumors had developed, if they could be traced to a given cage or group of cages, we were notified that the mice were scattered indiscriminately through the entire establishment. This condition of affairs was so interesting that we made a trip to Massachusetts to personally inspect the premises, whereupon it was found that this dealer, in order to combat infections and contagious disease had her stock distributed among a large number of small boxes. These mice were moved about from box to box and the different families were regularly subdivided and used for the purpose of forming new families. This practice is entirely different from that of the Springfield establishment and easily explains the general distribution of the tumor mice through the different breeding boxes. The fact that the tumors have developed in lots of half a dozen or more at one time and that in the various shipments to us the tumors have been of relatively the same size, suggest that small epidemics have occurred at frequent intervals. The attempt to trace the origin of the infection to any particular box in the establishment is, of course, under the present system, impossible, and it is not improbable that this method has led to the dissemination of the contagion through a large number of the boxes.

The foregoing observations indicate that both sarcoma in rats and carcinoma of the breast in mice must be looked on as contagious, and when considered in conjunction with the classical observations of Loeb[4] and Borrel,[2] in which, however, it was impossible entirely to exclude the factor of heredity, should lead us to pay more serious consideration to the interesting statistics constantly accumulating which show the probable infection of the surroundings of human cancer cases in so-called "cancer house." It should also lead to earnest consideration of the desirability of sterilizing the dressings of cancer cases and the complete sterilization of rooms which patients have occupied, and it should, at least, to no inconsiderable extent, offset the recent statement of Hansemann, that we have no right to add to the difficulties of the cancer patient by the unnecessary suspicion that he is suffering from an infectious disease. It should tend to combat the belief among pathologists that there are no grounds for even suspecting an infectious factor in malignant tumors.

Fright in the Etiology of Chlorosis.—De Renzi of Naples states that two sisters, 17 and 21 years old, suffered for several days from extreme fear during the recent eruption of Vesuvius. Almost immediately afterward they both began to exhibit symptoms of chlorosis, which developed into the typical clinical picture almost simultaneously in each. The occurrence is quoted in the *Presse Médicale* for October 3, from an Italian journal.

SOME OBSERVATIONS ON THE EFFECT ON THE BLOOD PRESSURE OF THE WITHDRAWAL OF FLUID FROM THE THORAX AND ABDOMEN.*

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CHICAGO.

In order to appreciate the effect which the aspiration of pleural effusions exerts on the blood pressure, it is well to bear in mind the influence which the collection of fluid in the pleural cavity has on the arterial circulation. Our knowledge of this subject has been obtained chiefly through experiments on animals.

If olive oil is allowed to flow slowly into the pleural cavity of a dog, the blood pressure undergoes a moderate initial rise and then remains almost constant. It is only after the entrance of a very large amount of fluid that the arterial pulse waves become slower and of greater amplitude and a marked fall in blood pressure takes place (Rosenbach). The respirations, however, are affected early, becoming more labored and less frequent until they cease entirely.

Pleural exudates during the expiratory act are often under a positive pressure of 5 to 26 mm. Hg. (Quincke, Leyden, Schreiber). This positive pressure acts in direct opposition to the normal intrathoracic negative pressure and, when the exudate is large, impedes the flow of venous blood from the abdomen into the thorax. An effort is then made by the respiratory muscles to restore the negative pressure within the chest. Deep inspiration increases the intrathoracic negative pressure to such an extent that compensation or partial compensation may occur and the venous flow be maintained. When such compensation fails, the right heart receives an insufficient amount of blood, the left heart does not fill the body arteries, the blood pressure rapidly sinks and death is imminent.

THORACENTESIS.

The withdrawal of fluid from the pleural cavity is attended with less danger than its introduction or accumulation. Nevertheless death does occur not infrequently from aspiration, while untoward symptoms, such as weakness, faintness and temporary collapse, are common. The occurrence of unfavorable symptoms is usually sudden and with little or no warning. Any sign, therefore, that would indicate the approach of danger would be of great value. It was with the hope that blood pressure determinations might be of such service that these observations were undertaken.

Very few records have been made on the arterial pressure during aspiration. Kapssammer states that twice he has noted a fall in blood pressure after thoracentesis, but he gives no data. Hensen records a fall in arterial pressure in 7 cases of pleuritic aspiration, in which he made one reading before and one after the operation.

In the accompanying series (see Table 1) of 15 cases of pleural effusion, 4 of which were tapped twice, I have taken the blood pressure at short intervals before, during and after thoracentesis. In every instance aspiration was used.

Constant Features.—Varied in character as the blood pressure charts are, they have some common features that are almost constant. During the excitement of preparation and the pain of puncture there is usually a temporary rise in pressure. During the withdrawal of fluid the pressure falls constantly, reaching, as a rule, the lowest point at the time of, or subsequent to, the removal of the needle. The average fall in 19 aspirations was 20 mm. Hg. The final pressure taken an hour or more after tapping is generally 5 to 15 mm. lower than the initial pressure, the average fall for 19 aspirations being over 8 mm.

Special Influences.—The *amount* of fluid withdrawn is an important factor in determining the degree of fall in pressure. The *rapidity* of withdrawal is no less important. Other things being equal, slow aspiration causes less fall in pressure than rapid aspiration (compare Cases 7 and 9, Table 1). The *duration* of the effusion is of great influence (compare Cases 3, 7 and 11 with 1, 2 and 12, Table 1). In cases of short duration the fall in blood pressure is usually not marked and the recovery is rapid. In long-standing cases the fall in pressure is greater, doubtless because the lung expands less completely and with greater difficulty than in the recent cases.

TABLE 1—THORACENTESIS.

Case	Diagnosis	Side tapped	Duration of effusion, wks.	No. c. c. withdrawn	Length of op. in min.	B. P. in mm. Hg.				Remarks
						Before op.	Minimum	Total fall	One hr. after	
1	Hydrothorax, ascites, cirrhosis, albuminuria.	r.	3	2,500	22	152	119	33	140	Hard cough, dyspnea at end of aspiration.
1	Hydrothorax, ascites, cirrhosis, albuminuria.	r.	1½	2,500	12	142	115	27	132	Hard cough, dyspnea at end of aspiration.
2	Pleurisy, arteriosclerosis	r.	4	1,360	34	105	70	35	85	Age 80 years, became faint and dizzy.
3	Pleurisy	r.	5/7	2,000	13	106	98	8	102	Severe pain from needle, no faintness.
4	Pleurisy, chron. nephr., arteriosclerosis.	r.	2	1,750	10	185	160	25	173	Dyspnea and faintness near end of aspiration; age 70 years.
5	Pleurisy, myocarditis, nephritis.	l.	2	400	15	163	152	11	158	No discomfort.
6	Pleurisy	l.	3	600	11	110	102	8	109	No faintness.
7	Pleurisy, pulmonary tuberculosis	l.	1	1,600	42	95	80	15	90	Slight faintness at end of aspiration.
7	Pleurisy, pulmonary tuberculosis	l.	1	300	16	95	88	7	93	
8	Pleurisy, phthisis	l.	13	2,000	9	120	106	14	110	Epigastric angina during aspiration with rise in B. P. from 106 to 156 in 5 minutes.
9	Pleurisy	l.	3	1,000	5	112	72	40	104	Grew faint; profuse perspiration.
10	Hydrothorax, chronic nephritis.	l.	4	300	4	234	208	26	218	No discomfort.
11	Pleurisy	r.	1	2,000	17	112	100	12	108	No discomfort; considerable pain, no faintness.
11	Pleurisy	r.	1	1,100	10	112	90	22	103	
12	Hydrothorax, nephritis	l.	8	2,000	15	148	112	36	130	Considerable cough, pain and distress.
12	Hydrothorax, nephritis	l.	1	1,300	14	152	122	30	138	Very little discomfort.
13	Pleurisy, myocarditis	r.	2	1,400	7	90	80	10	80	Bloody fluid; no faintness.
14	Hydrothorax, double mitral insufficiency	l.	2	1,250	15	102	98	4	104	Pneumothorax caused by lung puncture with needle; no ill effects.
15	Pleurisy	r.	2	750	40	130	122	8	140	Pneumothorax by entrance of air through needle; no ill effects.

* Read in the joint session of the Sections on Practice of Medicine and on Pathology and Physiology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

Senile changes in the blood vessels and heart seem to favor a relatively rapid and deep fall in pressure and a slow recovery (Cases 2 and 4, Table 1). Heart disease alone, however, has apparently little effect on the pressure curve (Cases 5, 13 and 14, Table 1). Pneumothorax, even when fairly extensive, does not appreciably affect the blood pressure (Cases 14 and 15, Table 1). *Epigastric angina,* caused by a reflex spasm

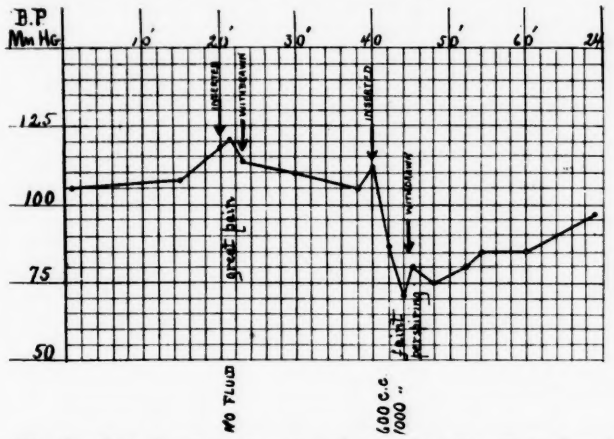

Fig. 1.—Case 9. Left thoracentesis showing the effect of rapid withdrawal of fluid.

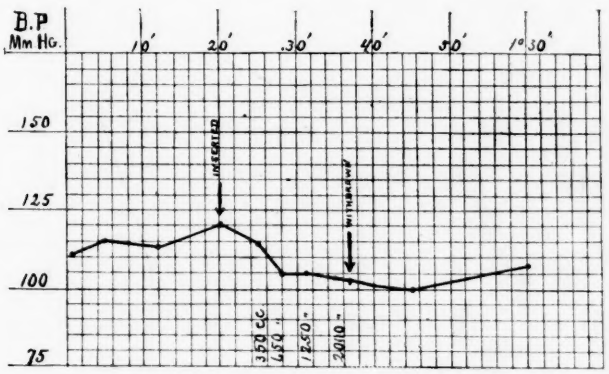

Fig. 2.—Case 11. Right thoracentesis showing a moderate fall in a case of one week's duration.

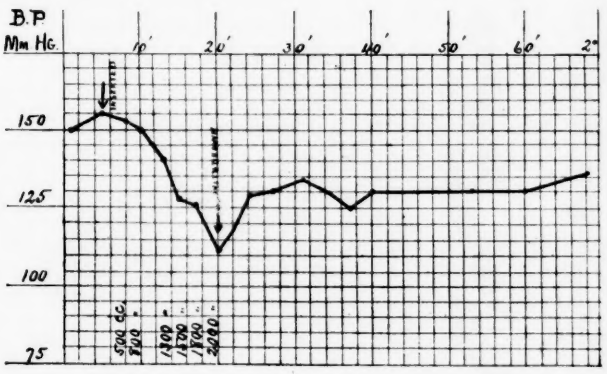

Fig. 3.—Case 12. Left thoracentesis showing marked fall in a case of eight weeks' duration.

of the abdominal arteries brought on by the irritation of the needle, produces a very rapid rise in the general arterial pressure (Fig. 6).

ABDOMINAL PARACENTESIS.

Up to a certain point the general arterial pressure increases with an increase in the pressure of intra-abdominal fluid; beyond this point the blood pressure falls. Quirin attributes the early rise in blood pressure to increased resistance by compression to the flow of blood through the abdominal arteries; the fall occurs when the heart, handicapped by a diminished supply of venous blood, is no longer able to overcome the resistance of the abdominal arteries. Ascitic fluids have an intra-abdominal pressure of 19 to 42 mm. Hg, according to Quincke,

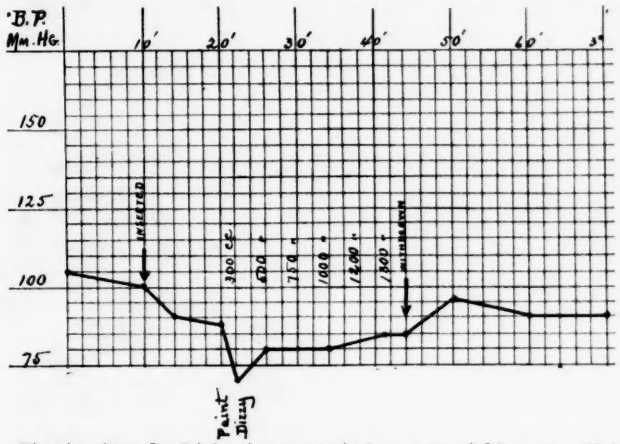

Fig. 4.—Case 2. Right thoracentesis in a man of 80 years. Note decided fall in pressure.

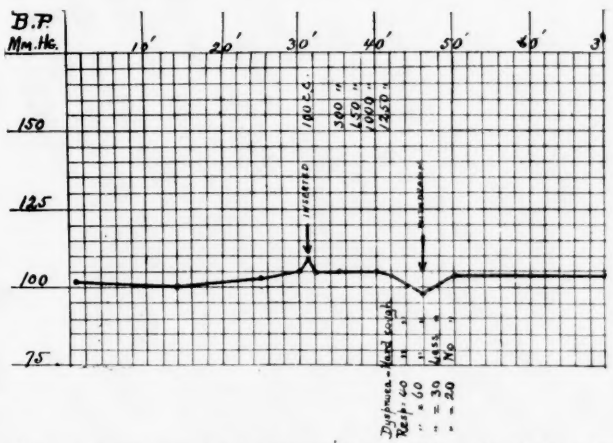

Fig. 5.—Case 14. Left thoracentesis showing the slight effect of accidental pneumothorax.

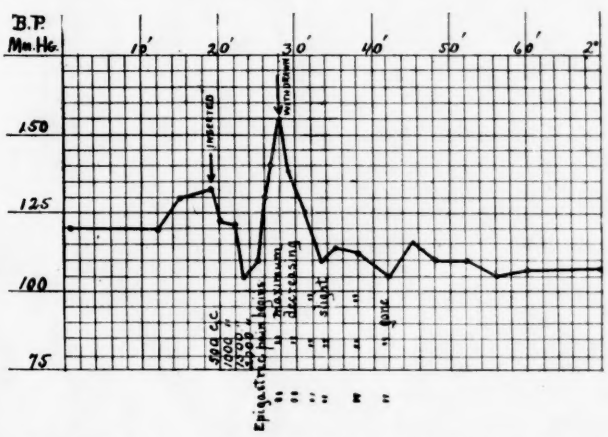

Fig. 6.—Case 8. Left thoracentesis complicated by abdominal angina.

Quirin found that the intra-abdominal pressure fell 10 to 14 mm. after tapping and that this corresponded with the simultaneous fall in arterial pressure of 5 to 10 mm. Hensen likewise observed a fall of from 3 to 9 mm. Hg after paracentesis in four cases. Cook and Briggs record one case of abdominal paracentesis in which the pressure fell 35 mm. Hg during the withdrawal.

My own observations were on 9 cases of ascites, the patient in each case being tapped in a sitting position. Three were tapped twice or more.

Constant Features.—During the drainage of the fluid, as a rule, a fall occurs in the arterial pressure that averages 32 mm. The lowest pressure comes usually several minutes after the needle is withdrawn, but it may come at any time during the procedure. Once a fall of 62 mm. took place in the first minute of drainage when 2,000 c.c. of fluid escaped in that length of time (Fig. 7). This fall was probably in the nature of a temporary collapse due to a sudden relaxation of the splanchnic vessels. In other instances the fall in pressure was very slight. The final pressure taken an hour or more after paracentesis on an average is 12 mm. lower than the initial pressure. This decrease corresponds closely to the average fall of 10 to 14 mm. in the intra-abdominal pressure after tapping that was noted by Quirin.

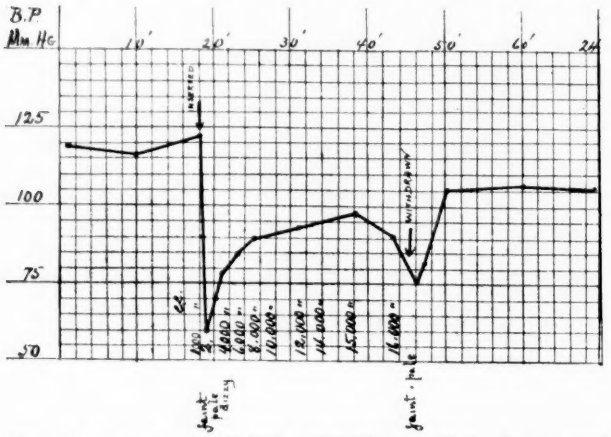

Fig. 7.—Case 7. Abdominal paracentesis; effect of very rapid withdrawal.

Special Influences.—The *rate* of withdrawal seems more important than the *amount* of fluid removed in its effect on the immediate fall in arterial pressure. The final pressure, however, is more affected by the amount of fluid. *External pressure* on the abdominal wall at the end of drainage often raises the pressure 5 to 20 mm. This acts in the same way as Crile's pneumatic suit in shock in supporting the splanchnic vessels and relieving abdominal engorgements. *Posture* is important. Normally the pressure is higher in the sitting than in the recumbent position. At the end of paracentesis, however, lying down often increases the pressure 6 to 20 mm. (Cases 1, 2 and 3, Table 2). The improvement is most pronounced in those cases that undergo a marked fall in pressure during the operation.

Conclusion.—I realize that the number of observations here recorded is insufficient to warrant any final conclusions. It is desirable that records be made of the blood pressure curve in a large number of cases of thoracentesis in which simple siphonage without aspiration is employed. Finally, there is need of further experimentation with both mechanical and medicinal agents directed toward the prevention and relief of untoward circulatory symptoms occurring during the withdrawal of fluid.

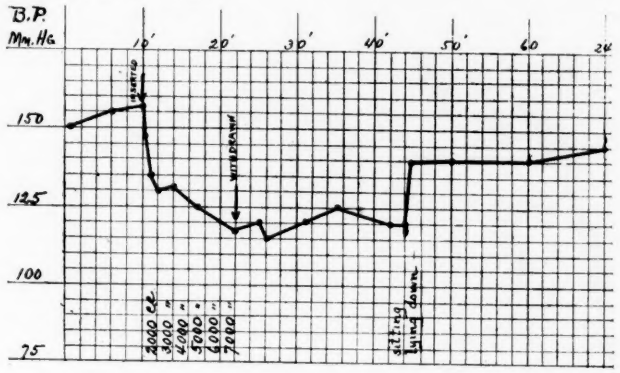

Fig. 8. Case 1. Abdominal paracentesis showing the effect of posture.

TABLE 2—PARACENTESIS ABDOMINIS

Case	Diagnosis	Duration of effusion wks	No. c. c. withdrawn	Length of op. minutes	B. P. in mm. Hg.				Remarks
					Before op.	Minimum	Total fall	One hr. after	
1	Ascites, nephritis, cirrhosis of liver	3	7,000	16	150	115	35	125	Before tapping; sitting, B. P.=150, lying=145
1	Ascites, nephritis, cirrhosis of liver	5	6,700	13	144	115	29	132	After tapping; sitting, B. P.=120, lying=145
2	Ascites, cirrhosis of liver	4	3,000	16	146	106	40	120	Before tapping; sitting B. P.=148, lying=146
3	Ascites, cirrhosis of liver	3	3,000	14	118	60	58	104	After tapping; sitting B. P.=106, lying=120
4	Ascites, nephritis, dilated heart	2	1,000	12	160	144	16	158	Before tapping; sitting B. P.=119, lying=110
5	Ascites, nephritis	4	6,000	14	145	120	25	130	After tapping; sitting B. P.= 75, lying=104
5	Ascites, nephritis	7	7,500	22	172	148	24	155	No discomfort.
5	Ascites, nephritis	8	6,500	15	176	145	31	165	Faintness near end of tapping.
6	Ascites, myocarditis nephritis	3	6,000	13	160	140	20	155	Faintness near end of tapping.
7	Ascites, cirrhosis of liver	4	21,500	33	125	86	39	104	Faintness; pressure on flanks raises B. P. from 155 to 170 mm.
7	Ascites, cirrhosis of liver	5	16,000	27	116	60	56	108	No discomfort.
8	Ascites, cirrhosis of liver	2	3,500	24	95	80	15	90	Slight faintness.
9	Ascites, cirrhosis of liver	4	8,000	22	100	95	8	100	Faint, pale and small pulse after withdrawal of 2,000 c.c. for very short time.
									Pressure on flanks does not raise B. P. materially.
									No discomfort.

ACUTE INFECTIONS OF THE THORACIC CAVITY.*

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This paper is limited to a consideration of empyema in its earliest stage, when loculated, first, between the lung and the chest wall; second, between the lobes, interlobar; third, between the diaphragm and the lung. It should be our aim to determine the presence of small collections of pus in the pleural cavity. It is no credit to the profession at the present time to send to the surgeon a patient with the chest half filled with pus or even with half a pint or a pint of such accumulation. Members of the profession have not taken to heart the lessons of Murphy,[1] Willard[2] and Eisendrath[2] and the

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1. "Surgery of the Lung," THE JOURNAL, A. M. A., July 23, 1898, p. 151.
2. THE JOURNAL A. M. A., Sept. 20, 1902, p. 665.

excellent essays and reports of Withington, Sears, Jackson, Munro and others.[3]

The force of the necessity of recognizing early small collections of pus can be appreciated only when we recall the disastrous results that follow accumulations of large amounts, either from general systemic infection or from the local changes in the lungs, the pleural cavity, or the chest wall. One can scarcely conceive of the crippling effects of such accumulations without unfortunate practical experience. I am one of those who believe the compression of the lung, even by a sterile fluid, is not good for the patient or for the lung.

To recognize the local small collections of pus a careful study of the clinical course of the disease, which includes a careful history of the case, a consideration of the general and local symptoms, a study of the physical signs, the use of the *x*-ray, and, if necessary, the employment of exploratory operation, is essential.

The frequency of occurrence of empyema can not be accurately estimated. Reliable statistics exist as to the frequency after pneumonia. (Table 1.)

TABLE 1.—FREQUENCY OF EMPYEMA AFTER PNEUMONIA.

	Empyema.	Abscess of Lung	Gangrene of Lung.
Clinical Reports:			
University Hosp.	0 in 45	0 in 45	0 in 45
Presbyterian Hosp.	9 in 489, 1.8%	2 in 489, 0.4%	0 in 489
Collected from literature.	276 in 12,892. 2.1%	76 in 12,030, 0.63%	136 in 27,761, 0.49%
Autopsy Reports:			
Collected from literature.	50 in 973, 5.1%	28 in 1294, 2.1%	100 in 1914, 5.2%

There seems to be some well-founded evidence that many of the cases of so-called unresolved pneumonia are either cases of empyema, small and loculated, or cases of abscess of the lung. Jackson's recent paper points out the very great infrequency of unresolved pneumonia, and I am bound to admit that I have never seen a case to which I could apply this term.

CLINICAL COURSE.

The clinical course can be better appreciated when we recognize that empyema is local and secondary at first, and, even more broadly still, that infectious pleuritis, as peritonitis, is never primary. There is some focus of infection in relation to the pleura which is a starting point of the inflammation.

The history of the disease is of importance in the recognition of the infection. The usual antecedents that precede an empyema are: (a) Serous pleurisy; (b) pneumonia; (c) typhoid (from ribs); (d) scarlet fever; (e) local conditions (fractured rib, gullet, etc.). The history of the course of any one of these conditions in a patient in whom there is suspected infection within the thorax aids in the diagnosis.

SYMPTOMS.

The general symptoms are those of an infection occurring in the course of or after one of the primary antecedents named above. They may be of gradual onset, characterized by fever, sweats, the usual phenomena of infection with the occurrence of leucocytosis. In young individuals the symptoms are usually very frank. In older persons, and those suffering from primary disease elsewhere, as of the kidneys or the liver, the symptoms may be ill-defined and in large part in abeyance.

I was much interested in two cases recently under my care in old individuals in whom the primary infection was not characterized by very marked symptoms. Both were the subject of pneumonia. In one patient, aged 78, the general symptoms were very mild. Notwithstanding well-marked signs of consolidation, the temperature never rose above 100.5 and 101 F. After the subsidence of the pneumonic symptoms with the gradual development of the secondary infection of the pleura, the febrile symptoms were more pronounced and typically hectic. The toxemia of the primary infection no doubt modified the clinical course in the beginning. As the toxemia disappeared the septic symptoms of the secondary infection became more pronounced so that an evening temperature of 102.5 or 103 F. was the rule.

In the second instance the general symptoms of the first period were very irregular, while the fever was not suggestive of a pneumococcus infection. In the second period, with the development of the empyema, the characteristic fever of this infection occurred. Reliance must be placed in these instances of the gradual onset of the general symptoms on the leucocytosis. This is undoubtedly a very important symptom. It is likewise notably present in the period of secondary infection, although it may be absent with the primary disease. In the empyema following typhoid fever I have usually found a leucocytosis, although not to the same degree as it occurs after pneumococcus infection. It may be said in passing that usually such infection, in my experience, was developed from a periostitis of one of the ribs.

In not a few instances the onset of the symptoms is sudden, especially if the infection is streptococcic. This is particularly true in cases following scarlet fever and in those which develop in the course of a serofibrinous pleurisy. A chill marks the onset, high temperature follows and persists, with the usual septic phenomena.

I must earnestly beg internists not to mask constitutional symptoms by drugs. Much has been written of the dangers of opium in abdominal diseases because it masks the signs. Just so antipyretics, even of the mildest form, mask the constitutional signs of an infection apart from the great danger to the heart and nervous system. I have seen large doses of quinin keep down the temperature to such a point that it was thought there was no abscess, but only delayed resolution.

Local Symptoms.—I shall not dwell on any local symptoms except the occurrence of pain and tenderness.

Pain: When pain occurs it is usually an indication of the site of the focus of infection, barring those instances in which it is transferred. Thus, when the infection begins in a diseased rib or following a fracture, the pain may not be complained of at the seat of the lesion, but on the anterior portion of the chest at the exit of the branches of the intercostal nerve. As in all instances of pain, our studies must be on the lines laid down by Hilton, Head and MacKenzie. It is well known that the pain of diaphragmatic pleurisy may be anterior while the disease is progressing. I have not been able to corroborate the statement that such pain may be felt in the neck at the point of origin of the phrenic nerve. It is very certain, however, that in the scapular region there may be pain because of diaphragmatic infection for the same reason that in certain forms of liver disease there is scapular pain.

Tenderness: Localized tenderness is a far more important symptom than pain. The toxic state of the patient may be such that he would make no complaint of ordinary pain. If, however, the chest is carefully examined with firm and deep pressure, following, especially

3. Published during the last two or three years in the Boston Medical and Surgical Journal.

in the interspaces, the septa which divide the lobes of the lung, one will almost surely detect a point of tenderness suggestive of the localization of the purulent collection. Deep pressure may be necessary to bring it out. Such exploration along the margin of the diaphragm or the upper borders of the liver may help also to localize the infection.[4]

In the case of a medical friend recently under my care, with others, the patient himself could circumscribe with his own finger the point of tenderness around the purulent collection. Dr. Fussell will recall the case which we aspirated without success at a certain point because the physical signs indicated the localization of the abscess in this region. When the needle was inserted in the upper axillary region over the septa and at a point where tenderness was elicited, pus was secured at once. I am so impressed with the importance of this sign that I would almost prefer to say nothing further in the paper in order that its value could be more strongly emphasized.

PHYSICAL SIGNS.

When the collections of pus are small and between the lobes, it can readily be surmised that the physical signs will be indefinite and perhaps, even, may be almost wanting. In a case with the history previously mentioned in which symptoms of infection arose, recognition must be taken of the slightest departure from the normal and stress laid on it. Of such signs the occurrence of impairment of movement or expansion will perhaps be one of the first detected. Such impairment may be limited to an apex when pus is developed between the lobes or to the base when the diaphragm is the site of infection. If the latter, the excursion to the diaphragm as indicated by the method of Litten will afford a valuable clue as to the possibility of pus in that neighborhood. Early in the disease the fremitus may or may not be modified. If careful comparisons are made, interspace by interspace, in the larger majority of instances it will be absent or deficient. One must remember, however, that consolidations in front of the abscess may conduct vibrations and may be somewhat confusing.

Percussion Note: The percussion note is of very great value and three points particularly are worthy of consideration:

1. The area of modified resonance or dulness is in the beginning fixed. The fluid is not in sufficient quantity to change position. Modification of the note on inspiration and expiration is of great value in determining the localization of the abscess. Change in the character of the note when the patient changes from the upright to the recumbent posture, when this is practical, is of as much importance as we know it to be in the determination of the presence of cavities.

2. The position of the area of dulness or modified resonance. When the abscess is between the lobes the area of percussion dulness will have direct relation to the septa. When the abscess is near the surface between the lobes the dulness may be at any point along the septa. When it is deep the area of dulness will be below the lines dividing the lungs. Thus, an abscess between the upper and lower lobe of the left lung deeply situated will give signs posteriorly an inch or two below the margins of the lobes indicated, directly beneath the chest wall. The marginal line is along the fourth rib behind and the fifth in the axilla, and in front. The dulness would be below this point. If the abscess is on the dome of the diaphragm the first indications of impaired resonance will be not at the extreme bases, but from three to four inches above the base on the left side, and from one to two inches above on the right side. In general, it may be said that in localizing small abscesses one must confine oneself to an exploration of the mid-regions of the chest or of the diaphragm. Following the lines of the septa I have localized abscesses posteriorly behind the scapula (case of Dr. Nock), in the upper axillary region (case with Cheston), above the heart (case with Martin), in the second and third interspaces on the right side anteriorly (case with Allig), and in the fifth interspace in the same region (case with Deaver).

3. Skodiac resonance is a sign of the very greatest importance. Its occurrence anteriorly, latterly, and especially when in relation to the margins between the lobes, furnishes a valuable clue to the localization of a purulent collection. In not a few instances it may be elicited in very decided degree, when at the same time fremitus and the breath sounds over the hyper-resonant area may be entirely absent. I have never seen this combination of phenomena occur except in cases of localized purulent collections either between the lobes or at an opposite point from the resonant area. My attention has been directed to it a number of times, and in no instance was consolidation found.

The shape of the area of dulness is not of very great significance. I think I am warranted in saying that in those collections which begin over the diaphragm and come out underneath the lung we may find it gradually rising in a V shape with the base downward in the post-axillary or scapular line. This, of course, has in part physical reasons for its development. When large effusions are present, it is well known that the highest point of the effusion, as demonstrated by Gannett, is on this line.

Auscultation.—Small collections give very little change of auscultation phenomena, save, perhaps, the diminution in breath sounds corresponding to the diminution in expansion. Again, with general symptoms of infection, and a previous history of thoracic difficulty, if we auscultate along the margin of the lobes, the presence of pleural frictions will in all probability be detected. Such frictions must be noted, as they may be the earliest indication of the localization of the abscess. I have demonstrated this to my satisfaction, and have made it, with tenderness on pressure, a guide point for further exploration.

Nothing, of course, is to be said of enlargement of the affected side, of the dislocation of the organs, of interference, of movement, or the presence of flatness or of movable dulness, as these are the signs of large collections which are not considered in this paper. It is small collections that we want to recognize.

USE OF X-RAYS.

Studies have been made by Talley and Newcomet with the *x*-ray and the fluoroscope in my wards. Their conclusions are that the value of the Roentgen ray in detecting these conditions in the chest is variable. It is the common experience of a thickened pleura in this a previous consolidation without much thickening of the

4. Subsequent to the reading of the paper I wish to add a note to emphasize this very important symptom. In the discussion, one of the speakers stated that pain was not of common occurrence. With this I am in accord. Tenderness, however, is very common and is a very important indication of the position of the abscess. On the day of my return from this session I saw a case in consultation with Dr. Stahl, and we were able to localize the accumulation positively by the occurrence of this sign. An operation by Martin proved the truthfulness of the observation.

pleura, and the shadow is less uniformly dense than that of fluid in the pleura, so that under such circumstances a loculated empyema or a full abscess cavity is apt to stand out by its dense shadow in contrast to the less homogenous shadow of the resolving pneumonic consolidation. In similar circumstances, an empty cavity is even more evident, surrounded as it usually is by its wall. One case showed that an area of bronchiectasis with bronchial tubes filled with secretion, simulated an abscess. The mistake was all the more natural, as there existed above a well-defined cavity of an abscess that had discharged.

EXPLORATORY PUNCTURE.

I am not advocating exploratory puncture, notwithstanding the fact that in the body of the paper cases are referred to, in which I have resorted to exploratory puncture. No doubt there are instances in which it may be justifiable to do it as a means to localization. I believe the day is not far distant when we will be just as much in dread of introducing the needle into the thorax as we are of introducing it into the abdominal cavity. With the surgeon present and ready to operate at once, I am willing to admit that it may be employed. I feel, however, that it must not be relied on as a means of diagnosis. The failure to localize pus by means of such puncture occurs so often as to mislead and to allow dangerous dilly-dallying. Such failure arises in part from the small size of the abscess, although I believe that with attention to details in examination, at the present day, we can suspect its location with greater accuracy than formerly.

Another cause of failure lies in the instrument itself. I have repeatedly seen the day for further exploration put off because no pus was obtained, and this arose because of the imperfection in the instrument. There is no doubt that more can be accomplished with a large-sized instrument than with the small ones usually advised, and that the trochar and canula are probably preferable to the aspirator.

It may be said in passing that this needling to determine the localization of pus is just about as negatively dangerous when abscesses are present in other locations than the thorax. The danger arises for the reasons above mentioned. Within the year a much-beloved and most able member of the profession lost his life from a subpectoral abscess, the presence of which was overlooked, because on needling in the region no pus could be detected. Incision by Deaver later showed the presence of a large collection, but unfortunately general sepsis had gone too far to save the life of the patient. Recently I saw a case of abscess about the hip joint, missed by needling, which led to grave destruction of the ischium before the knife showed its precise location. I can not see why surgeons will not undertake a little dissection and direct exploration rather than trust to the uncertainty of needling in cases of undoubted infection, the localization of which in a general way is usually made manifest by symptoms such as pain and tenderness.

EXPLORATORY OPERATION.

Realizing the danger from infection of the lung or of the healthy pleura by exploratory puncture, or the failure in not localizing pus in such puncture, we feel bound, in a large majority of cases, to advise direct exploratory procedure. Of course, it must be borne in mind that no one but an educated and experienced surgeon should be allowed to resort to such operation. I sympathize very much with the internist who has not at his right hand a competent surgeon to aid him in the management of cases of this character. It is far better, of course, to play a waiting game, and even to resort to exploratory puncture if one can not command the services of a trained surgeon. I realize that in urging exploratory operation the surgeon may have many problems to work out. I believe that the time is rapidly coming, however, when the technic of thoracic surgery will be as well worked out as that of abdominal surgery. If we do not have courage to go at it now and attempt to solve the problems they never will be solved.

So far as I can see, the mooted points are as to the choice of the anesthetic and the mode of procedure. It is for the surgeon to determine whether the operation should be done in two steps or not. From cases which I have had with Willard, notably the case of abscess of the liver, opened directly through the pleura, I take it that stitching the pleura together and making a definite field of operation is without danger. I have no doubt that the matter of packing, as in abdominal surgery, will be further developed with advantage to the operator. I am all the more urgent in insisting on exploratory operation, because in a considerable experience, in association with a number of operators, I have never seen any harm come from opening the thorax. It has not been my bad fortune to see a dangerous pneumothorax arise. Keen tells me that it has never occurred in his large and bold experience. The O'Dwyer-Fell apparatus for artificial respiration can generally overcome any untoward symptoms.

TABLE 2.

DEPTH OF THE BLOOD VESSELS AT ROOT OF THE LUNGS FROM THE SKIN SURFACE OF CHEST, DETERMINED BY MEASUREMENT ON TRANSVERSE SECTION OF FROZEN BODY OF AN AVERAGE ADULT MALE, BY DR. GEORGE MORRIS PIERSOL.[5]

Measurements at level of junction of third costal cartilage with sternum (6th dorsal vertebræ):

	Inches.	Centimeters.
Right Lung.		
Two inches outward from spinous processes	3¾	9.5
Four inches outward from spinous processes	4½	11.25
From posterior axillary fold	5	12.5
From mid-axillary line	3¾	9.5
From anterior axillary fold	3½	8.25
From mid-clavicular line	3½	8.25
Left Lung.		
Two inches outward from spinous processes	3¾	9.5
Four inches outward from spinous processes	4½	11.25
From posterior axillary fold	5	12.5
From mid-axillary line	3½	8.25
From anterior axillary fold	3½	8.25

Measurements at level of junction of fourth costal cartilage with sternum (seventh dorsal vertebræ).

Right Lung.		
Two inches outward from spinous processes	3½	8.25
Four inches outward from spinous processes	4¼	10.5
From posterior axillary fold	5¼	13
From mid-axillary line	4	10
From anterior axillary fold	3½	8.25
From mid-clavicular line	3¾	9.5
Left Lung.		
Two inches outward from spinous processes	3¾	9.5
Four inches outward from spinous processes	4	10
From posterior axillary fold	5	12
From mid-axillary line	2¾	7

From anterior axillary line and midclavicular line, the heart prevents introducing needle.

Apart from the point that there is no harm, all arguments that may be employed for exploratory operation in diseases of the abdomen can be used to support the procedure in diseases of the thorax. The precision in diagnosis that follows, the prevention of sepsis and of the secondary effects thereof on the heart and kidneys, the prevention of lung destruction or such compression of the lung as to incapacitate it, the prevention of chest-wall destruction and deformities are accomplished by

5. My best thanks are due Dr. Piersol for the measurements made on several bodies with care and skill.

the early removal of the purulent accumulations. I might add that such exploratory operation admits of complete examination of the entire thoracic cavity.

Table 2, which shows the distance from the chest wall at various points of the vessels, indicates the ease with which all points may be reached by the finger or the trochar.

DIAGNOSIS.

I will not take up the time of the Section with a consideration of the differential diagnosis of the various forms of intrathoracic infection. We must realize that such infection may be due to tuberculosis on the one hand or to multiple abscess of the lung on the other, neither of which can readily be the subject of surgical management, and must, therefore, be differentiated from empyema, pulmonary abscess and gangrene. In a future communication I hope to take up in detail the diagnosis of these infections. I would point out here that pulmonary tuberculosis has a clinical course that differs from the one under consideration; that it is not attended by a leucocytosis; that the pulse rate is out of proportion to the local signs; that the respiration rate is greater than the physical signs; that the signs may be present in one or more localities, and that the enlargement of the glands above the clavicle and in the neck is of more common occurrence than we are led to believe. Of course, the finding of tubercle bacilli or securing of the tuberculin reaction renders the consideration of all other phenomena unnecessary. I must admit that the difficulties are very great. I feel that in these more acute tuberculous infections in which there are no sputa, we will be more likely to find bilateral lesions than in the infections of the pleura due to pus-producing microoganisms. The *x*-ray and fluoroscope will enable us to define the multiplicity of the lesions. Multiple abscess of the lung is also difficult of recognition. It usually follows a bronchopneumonia, either of streptococcic origin or due to influenza, and generally the sputa will suggest the nature of the lesion. The physical signs are those of small areas of consolidation and then of cavity formation rather than of pleural lesions. When cavity formation occurs the pus has the usual characteristics.

Subpectoral Abscess.—I have seen three cases of subpectoral abscess which had been considered of intrathoracic origin. The general phenomena are out of proportion to the pulmonary symptoms and even to the physical signs. Because of the location of the abscess, normal respiratory signs may be so modified as to suggest intrathoracic disease. The history of the case and the examination, as well as the results of exploratory operation, will be sufficient to localize the lesion.

TREATMENT.

What has been said anticipates my statement that empyema at this or any other period of its development is a surgical disease. My plea to the internist, therefore, is to attempt to make a diagnosis as early as possible, and in cases of doubt to have the advice of the surgeon at once. It is more than criminal to delay and almost as criminal to explore. Let us be willing to give up this last semblance of our fading surgical power, the exploratory needle, and early beseech the surgeon to open the chest for direct exploration and immediate treatment. My plea must extend also to the surgeon to the effect that he more closely study procedures for the relief of thoracic infections and not enter in a half-hearted way on this field that belongs to him. I speak very feelingly, for I have to lay up against the surgeon not a few instances of failure to relieve pulmonary abscesses when they were present, or to secure pus when purulent accumulations were undoubtedly present. Let him not delay until pus is so obviously present that the merest tyro with a hypodermic needle can reach it or can demonstrate it by the physical signs of pleural effusion. It is too late then, as forcibly comes to me when I recall the case of one patient who was allowed to go on, and although a late operation relieved him of pus, death took place because he was worn out, a termination which could have been averted if an operation had been done two weeks before.

I can not let the occasion pass without expressing my conviction that not only will we consider purulent accumulations of the chest as a surgical disease, but also conditions of serous membranes of inflammatory origin. I feel with Delafield that the sooner we get rid of this accumulation the better, and that surgical measures alone can bring it about.

THE TREATMENT OF PLEURISY WITH EFFUSION.*

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A number of explanations have been offered to show how a serous effusion is removed by Nature. It seems important to take these into consideration here, not because it is always best to imitate Nature in removing pathologic conditions, but in order that we may have a rational basis for our therapeutic methods. The oldest explanation is that of absorption of the fluid. It is evident that absorption may take place either by blood vessels or by lymphatics, but as a matter of fact absorption by blood vessels was usually referred to when the term absorption was used. Absorption by the blood vessels takes place through the veins; increased intrapleural pressure increases it, but when this pressure is too great the veins themselves become compressed and absorption ceases. S. West[1] claims that this method of absorption plays a very small part in the removal of fluid from the pleural cavity. He insists that absorption takes place through the lymphatics. He states that the pleural cavity is a lymph cavity, its lining is that of endothelial cells, between which there are somata which form the beginnings of lymph capillaries. These lymph vessels have valves directed away from the pleural cavity and they finally empty themselves into the thoracic duct. The mechanism for the removal of a serous effusion is that of a "lymphatic pump," which acts during respiration in increasing the flow of lymph. When there is a great effusion lymphatic absorption is entirely suspended, because expiration can not take place on the side affected and the pump is stopped.

It is more likely, however, that the compression of the lung by the pleuritic effusion is the predominating factor in the prevention of absorption, as by it the stomata and the lymph vessels, as well as the veins, are compressed which, in the latter, finally terminates in a paretic condition. This, moreover, would also explain the lack of absorption in a small effusion which, although to a less extent, produces the same effect on the lung surrounded by it, as a very large one. That this intrapleural pressure

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1. West, S.: "The Treatment of Pleuritic Effusion by Paracentesis," etc., Lancet, March 25, 1905.

is at times great is shown by Bard,[2] who has found it as high as 40 mm. of mercury. The removal of some fluid "might start the pump again," but it seems just as probable that this acts on a limited area of compressed blood vessels by relieving pressure and thus causing absorption to be begun. Aside from the action on "the lymphatic pump," the occlusion of stomata by inflammatory products and their closure by pressure must be looked on as an important factor in preventing absorption. But whether we consider absorption by lymphatics alone or by both blood vessels and lymphatics as the cause of spontaneous absorption, the fact remains that the larger the amount of fluid the less favorable the chance of absorption. For in a small effusion there is a large area of non-compressed blood vessels, and as the fluid must creep up by capillary attraction, this healthy pleura absorbs fluid and, under favorable circumstances, spontaneous absorption may take place.

If we accept, then, these explanations for the mechanism of natural absorption in the pleural cavity, we find that the following must be taken into consideration in order to facilitate it in the acute form. It is prevented by the results of inflammatory processes which are deposited on the endothelial layer. It is prevented by intrapleural pressure, and the greater this becomes the less the chance of spontaneous absorption. That this is the case has been proved by L. Gogitidse[3] with absorption experiments who shows that: (1) Absorption by the pleura is diminished in exudative processes, and that (2) the amount of absorption depends on the quantity and quality of the exudate; the larger the effusion, the less the absorption; it is most reduced in empyema; it is least reduced in a pure serous, more so in a fibrino serous exudate; the more fibrin the greater the reduction. To render less operative these causes which prevent absorption means to facilitate it, and our therapeutic measures must be directed to what might now be called two indications.

TREATMENT OF ACUTE SEROUS EFFUSIONS.

For the first indication we must attempt to reduce the inflammation of the pleura itself. Whether this can be done with any amount of certainty is an open question and one difficult of solution. Many things have been recommended here; all those belonging to the antiphlogistic measures of former days, blood letting, cold or hot applications externally, derivatives, mercurials. At present we use the ice bag, local hydrotherapy, rest in bed, strapping the affected side and counter irritation. Many of the German authors administer sodium salicylate—6-10 gm. a day—in all cases which are "rheumatic" or in which the etiology is not clear (Ortner). That it may be of benefit is not denied; that the therapeutic indication is very vague must, I believe, be accepted.

The first indication being one that can be but imperfectly fulfilled, although I should not like to be without the means employed in fulfilling it, there remains the second indication, the lessening of the intrapleural pressure by the removal of the fluid. It may be possible by doing this that the first indication is also met in that in certain ways, removal of the cause is effected. Doerfler[4] has called attention to the application of Bier's principle of treating inflammations by artificial hyperemia, in diseases of the pleura. He applies this principle especially to tubercular pleurisies as will be seen further on.

The methods for withdrawing fluid from the pleural cavity can be classified as general and local. The principle on which the general treatment rests is that of modifying the blood structure in one way or another so that absorption takes place. It is a time honored principle, which has never been scientifically established, but which experience teaches us to be a valuable therapeutic measure. For the purpose of carrying it out the following procedures have been recommended: 1. The use of cathartics; calomel, the saline and the hydragogue cathartics. 2. Diuretics; theobromin-sodio-salicylate, digitalis, urea and a number of others, acting directly or indirectly. 3. Diaphoretics; pilocarpin, salicylic acid and the various hydrotherapeutic measures 4. *Diet.* a. Superalimentation, to be used in reduced patients. b. The reduction of the fluid constituents of the blood by restriction of liquids, either by Tufnell's method, or its modification by Hay and the Schrott cure, which consists in giving only stale rolls without any fluid. 5. The milk cure, which has been successfully applied, but to which renewed attention has been attracted as the outcome of physical chemistry by Chauffard and Boidin.[5] These observers claim that in an acute effusion the retained NaCl disappears with the fluid in the form of a chlorid urinary crisis. They state that the effects of ingestion of NaCl are different when the effusion is being absorbed from those when elimination has been followed by retention. Their experience with solid food as a dechlorhydrating means is unsatisfactory, and they come to the conclusion that milk, which is hypochloric, is the food of choice.

If we exclude superalimentation, the diuretics and the milk cure, we have mentioned methods which will always have a more or less depressing physical effect on the patient, and for this reason alone it seems to me that all these methods should be restricted to the chronic serous effusions, and if there be added to this the fact that we have in the local treatment one that covers fully the second indication I believe that with very few exceptional cases all the general methods are unnecessary in acute cases. In the chronic cases we are met with a different problem, for here the removal of the fluid alone does not suffice, as the cause of the reaccumulation of fluid may not be removed by change in intrapleural pressure. Finally, the removal of the fluid, aside from its efficiency, is a much simpler and less troublesome procedure than any one of the general methods for the patient as well as for the physician.

We have two local methods: counter irritation and the emptying of the fluid by mechanical means. Of the first method little need be said; as compared with the second it is inaccurate, inefficient and harmful. A patient suffers much more from a blister or an iodin dermatitis than from the operation for removal of the fluid. We have all seen patients in whom this method was worse than the disease. If counter irritation is used at all in acute pleurisy with effusion, it should be used in the form of the Paquelin or galvanocautery; that it should be used for the removal of the fluid seems improper.

PARACENTESIS.

Much has been written and said as to the indications for the removal of the fluid from the chest in acute serous effusion. On the whole, the indications laid down

2. Bard, L.: "Pression des Epanchements Pleuraux," Rev. de Médecine, 1902, xxii, 253-278, 340-365.

3. Gogitidse, L.: "Wratschebuajn Gazeta." Translated in Münch. med. Wochft., No. 36, 1904.

4. Doerfler, Hans: "Beitrag zur Behandlung der Pleuritis Exudativa im Verlaufe der Lungen-tuberculose," Deuts. Archiv. für klinische Med., vol. lxxxiv, 251, 1905.

5. Chauffard, A., and Boidin, L.: "Dechlorurée comme mode de Traitement des Pleurésies à Epanchement, Gaz. des. Hôpitaux, No. 51, 1904.

by Trousseau,[6] who practically re-established paracentesis, are those that are followed. Paracentesis should be done, according to him, (1) when there are symptoms which are dangerous to life, attacks of syncope, danger of suffocation, the *indicatio vitalis* of the German authors; (2) even without these symptoms, when there is present a large effusion (approximated at 2 liters); (3) if, notwithstanding general therapy, the fluid continues to increase, say after nine or ten days. It has seemed to me that there is no reason for waiting until dangerous symptoms arise before removing a pleuritic fluid; nor does it seem proper to allow the fluid to collect, with or without symptoms, before withdrawing it; first, because of the necessity of preventing adhesions, a point largely emphasized by Trousseau in his argument for the operation of paracentesis and their sequelæ, deformities of the chest, bronchiectasis, chronic pneumonias. The longer the fluid is allowed to remain in the pleural cavity the greater the danger of adhesions; while this may be a negligible quantity in small effusions, but one that has never been calculated with accuracy, in large effusions which have persisted for some time adhesions will be found that do more or less harm. Second, no human being can be considered in good condition who has a pleuritic effusion. It is a risk to permit him to go about his usual occupation; it is possible that dangerous symptoms may develop at any time, and the results to his general condition may be most unfavorable. Finally, whenever the fluid is withdrawn, the process may be terminated for the reasons already given. But even if this is not the case, and the fluid does accumulate again, it may again be withdrawn and in this way absorption may again be facilitated and permanent damage be prevented. Traube taught that the fluid should not be withdrawn as long as fever persists; this is no longer accepted. S. West says that early tapping, "within the first few days," does not shorten the attack. But, as Osler says, the results obtained by early aspiration, as recommended by Delafield, have never been equaled by any other method.

The preceding will show how views differ as to the indications of Trousseau; the correctness of one or the other can only be verified by the collection of a large material, and then one fact must always be kept in mind, that spontaneous absorption, again noted by Trousseau, frequently occurs in serous effusion.

One indication for early paracentesis, I believe, will be accepted by every one; when a large effusion develops rapidly, it should be withdrawn; the more rapidly it develops the greater the dyspnea, the greater the dyspnea the greater the danger to life.

As to particular indications for different etiologic factors, I wish to call attention to Doerfler's work in connection with tubercular effusion, already referred to. He says: The fluid produces an artificial anemia of the lungs and the pleura by pressure. When the fluid is removed an artificial hyperemia follows, as it does in other parts of the body with the good results claimed for it by Bier. The compression which has existed leads to vasomotor paralysis so that the hyperemia may last for days. In tubercular pleurisy every case should be treated by paracentesis, because the hyperemia produces leucocytosis, which is followed by marked development of connective tissue by means of which the tubercle is encapsulated. Paracentesis should be performed eight days after compression of the lung has existed and as much fluid as possible should be withdrawn; the more fluid is withdrawn the greater the hyperemia.

6. Trousseau: "Clinique Médicale," Translated by Culmann, vol. i, p. 645, et. seq.

TECHNIC OF OPERATION.

As for contraindications, I do not believe that any exist. The dangers of removing fluid from the chest are always insisted on; they certainly can be reduced to a minimum when the operation is performed with the necessary precautions. I have always used the aspirator, and in all my experience have never had a bad result. When the aspirator is properly used it is as safe as withdrawing the fluid with a trocar and syphon arrangement and much more convenient, as the flow of the fluid can be controlled and no air can enter the chest. In addition to complete asepsis, the following precautions are, to my mind, essential to safety: The pressure within the aspirator should be reduced to its minimum in the beginning; it is rarely necessary to increase it at any time. As the intrapleural pressure with effusion never exceeds 40 mm. of mercury (about two inches), anything below this will succeed in aspirating the fluid. So that at first the aspirator should contain air. If the negative pressure in the aspirator be too great the lung will be suddenly expanded, which may be followed by all those unpleasant consequences which are so thoroughly understood by all of us. Very little negative pressure is necessary in the aspirator, as it is more than likely that most fluids would flow from the pleural cavity without much suction, as when an opening is made the pressure of the fluid is the intrapleural pressure.

The next precaution to be taken, and just as important as the former, consists in not attempting to withdraw all the fluid at one sitting. Aside from the fact that this is impossible, it would be unnecessary if it were possible. Furthermore, the drawing off of these large quantities of fluid at one time leads to dangerous conditions: albuminous expectoration, cough, syncope, acute edema of the lungs, death. No rule can be laid down as to how much fluid should be removed at one time. In a number of cases I have found that the removal of a hypodermic syringeful of serum started absorption and the case then went on to complete recovery. Stintzing and v. Gerhardt have also had this same experience. But no one would think of withdrawing so small a quantity of fluid when there are serious symptoms which are due to compression or other causes; here the removal of a sufficient quantity of fluid to cause the symptoms to disappear is all that is called for. This may be 300 c.c.; it may be more, but under all circumstances not any more should be withdrawn than is necessary to remove all the symptoms; the absorption then will be started according to the principles stated in the beginning of this article, and if this should not be the case another paracentesis should be done at some future time. In most cases it will not be difficult to determine when the second aspiration should be performed; when dangerous symptoms reappear, or when absorption does not take place in a few days it is time to aspirate again. In following this method we do no harm and we imitate the process of Nature, as Alexander James[7] puts it. I may say that in neglecting this precaution the usual accidents have occurred with syphonage as well as the aspirator.

Another precaution to be taken is that the patient be in a position which approaches the recumbent as nearly as possible. When a large quantity of fluid exists in the

7. James, Alexander: "Chronic and Tubercular Pleurisy," Edinburgh Med. Journal, 1895, vol. xli, p. 200.

pleural cavity there follows compression of the lungs, the heart and of the larger blood vessels. If this has existed for some time there has taken place a process that can be called compensatory. When the pressure is suddenly removed, the circulation is suddenly changed and serious conditions may arise, in part, also due to the opening of blood vessel areas that have been occluded. It is an established fact that in the recumbent position the human being can withstand changes in circulation better than in the upright. The reason for this is found in the fact that gravity has a decided effect on the circulation; if a patient has a quantity of blood withdrawn from his brain on account of a sudden determination to the central organs the effect will be less in a recumbent position than in an erect position.

Lastly, the patient should be carefully watched while the fluid is being withdrawn; if he coughs violently and spasmodically, if he has a feeling of constriction or feels faint or has great pain, the operation must be interrupted; after a little while, the symptoms having disappeared, another attempt may be made; if the symptoms again appear, the needle must be withdrawn and the patient put to bed.

After the fluid has been removed it is well to keep the patient in bed and under observation for a short time. Depending on the cause of the exudation he may, if no symptoms appear, be allowed to rise in a day or two. In all cases respiratory gymnastics should be advised. In tubercular cases the after-treatment should be that of tuberculosis.

CHRONIC SEROUS EFFUSION.

The principles that have been applied here for treatment are those discussed in connection with acute serous effusion. But the results are not the same, because, as a rule, we are dealing with a different condition. In the largest number of cases changes in the pleura and the lungs are responsible for the reappearance of the fluid, and here again our treatment as at present carried out can only rarely be of benefit. There remain a small number of cases in which the removal of the fluid every time it accumulates does not seem to result in final recovery. The methods at present in use are: 1. Repeated withdrawal of the fluid, with or without injections of irritating substances, such as iodin. In all cases repeated thoracocentesis will have been performed as the method which most naturally suggests itself. Alexander James[7] suggests that from ten to thirty ounces be withdrawn every four to seven days. The injection of iodin has been given up; I have never seen any benefit follow from its use. 2. Thoracocentesis, with the injection of an equal or less quantity of a 0.60 per cent. NaCl solution, is also suggested. A. James was the first to use this method, which is based on the principle that the diluted serum is more easily absorbed than the undiluted. This method has again been taken up by Lewaschew.[8] Of it James himself says that no harm was done and he does not know that good followed. 3. West says that free incision and drainage is rarely required and that it must not be performed if the lung is bound down by adhesions, as a cavity filled with air is left. James says that it should be performed only in those cases in which there are found pleuritic adhesions. It should not be done as a routine method and only in those in which everything else has been tried. I have seen one case cured by this method, but I hasten to say that I believe it a very crude one, as it is simply a matter of chance whether or not incision and drainage will correct the condition which produces the chronic pleurisy. But the future therapeutic development of this subject lies in the direction of surgery. With the advanced methods now employed in lung surgery, and I refer principally to the use of the Mikulicz-Sauerbruch method, many of these cases will be cured.

8. Lewaschew, L.: "Beitrag zur Behandlung de Pleuritis Exudativa," etc., Wien. med. Presse, 1904, vol. xlv pp. 1741-1797.

EMPYEMA.

The principles of treatment differ from those for a serous effusion. While it can be confidently stated that in a number of cases the mere removal of the pus is sufficient for cure, yet this occurs only in a very small percentage of cases; in just as many cases as in abscesses in other parts of the body in which the pus is withdrawn by means of a hollow needle. Under ordinary circumstances this method of treating an abscess could not be looked on as being proper; for the pleural cavity it would be even more risky, as the chances of removing the pus so that the cavity closes up are even less than in other abscesses. Having used the term abscess, it immediately follows that the treatment of empyema is a purely surgical one. The one essential indication is the opening and drainage of this abscess. We are not particularly interested in the intrapleural pressure, as dangerous symptoms may exist even without the presence of large quantities of pus. The operation of thoracotomy should be done in every case. We have already admitted that a number of cases get well by aspiration; especially is this the case in children, but no one can state which case will get well in this way. It has been shown by Bouveret that the earlier the operation is done the shorter the duration of the disease. And it is equally true that the earlier the abscess is opened the less the mortality. The operation when done early is one devoid of danger. Under these circumstances the recommendation of some modern authors that empyema should be aspirated is one that should not be considered.

The question has been raised whether aspiration is ever permissible. If a patient is *in extremis*, should it be thoracotomy or aspiration? It seems to me there can be but one answer here; whether the immediate danger comes from the contents of the pleura or from remote causes, the operation of thoracotomy is the more efficacious of the two; it is easily done, no anesthesia being required, the opening should be made large and the fluid is emptied more quickly. If the patient survives, the proper thing has been done for the present as well as the future condition.

But, while the opening of an empyema is not a difficult matter, the question of drainage at times becomes a very serious one. It is for this purpose only that S. West recommends the resection of ribs. When drainage is complete and the walls of the abscess can come into apposition, a cure can be obtained in a comparatively short time. When this is not the case, a long time is required for *restitutio ad integrum* or the case develops into a chronic one. In order to insure the collapse of the abscess so that the walls can be approximated, resection of ribs was recommended (Estlander). At the present time this resection of ribs has almost become a routine method and it must be admitted that in this practice we are erring on the right side. When the thorax is very elastic this operation is not required, however, unless it is necessary for better drainage. It is certainly not required in children under 2 years of age, and some of the best results I have ever seen have been in young adults in the days before the resection of ribs was universally accepted. In cases in which the diag-

nosis is made early, I should except all such in which the thorax is sufficiently elastic to warrant the risk of its contracting sufficiently so that the abscess collapses. When the patient has been ill for some time, it may be taken for granted that fibrous tissue formation has advanced sufficiently to prevent the lung from expanding, so that approximation of the abscess wall can only be obtained by the change in the thoracic wall. In the chronic cases this was all that was attempted, and because it was considered impossible to cause a lung thus bound down to expand again nothing more was attempted and the results were not the most brilliant. In so extensive an operation as Schede's it was possible to cause approximation of the abscess walls, but at the cost of great deformity. Since 1893 the surgeons have taken cognizance of the fact that when the adhesions are removed, which cover the lung, it expands and thus, by means of rib resection and removal of the adhesions, even a rigid walled abscess can be made to heal up. In 1893 Fowler first did the operation of decortication, instead of this operation, as being safer and more easily carried out. Ransohoff[9] has devised and carried out the one of discission of the pleura which has given excellent results.

DISCUSSION.

ON PAPERS OF DRS. CAPPS, BONNEY,* MUSSER AND FORCHHEIMER.

DR. J. C. WILSON, Philadelphia, said he was glad that the papers constituted a plea for early removal of pleural effusions. A pleural effusion is a foreign body which mechanically interferes with the function of the thoracic organs, the circulation of the blood and the pumping function by which the lymph is distributed. It is capable not only of mechanical interference but also of becoming a focus for the production of toxins, thus establishing a liability to various infectious processes. This is true not only of purulent effusions but also of serofibrinous effusions. He has seen many cases which seemed to show this, cases in which the pleural effusion was small and easily removed, after which the fever disappeared. Two serious dangers of purulent effusions, as well as serofibrinous effusions, were well pointed out in the papers, the production of adhesions and atelectatic compression of the lung. The deposit on the pleural surfaces becomes organized. These processes do not take place at once. They take place little by little as the fluid remains. Dr. Wilson held that no sooner was a pleural effusion discovered than it should be aspirated. He believes this to be the only way to keep a patient from having permanent lesions.

DR. J. N. HALL, Denver, referring to Dr. Bonney's paper, said that some features relating to that subject are not dealt with in some of the text-books. He called particular attention to the fact that when people live from 2 to 2½ miles above the sea level they develop a greater heart weight in proportion to their body weight than elsewhere. Many miners live in camps one, two and three thousand feet below the mines, and, therefore, they must make the climb up the mountain in the morning. In addition to developing an increase in the size of his heart, a person in such circumstances also develops a greater lung power, which he must have, for he does much severe work which requires a large heart and breathing apparatus. These are all predisposing causes. Then the air is often vitiated and poisoned by particles of pulverized stone, also fumes from the powder. After 5 or 10 years the miner begins to fail. He has irritation of the bronchi, hypertrophy of the right heart, and eventually, a sufficient dilatation of the right heart to disable him so that he is no longer able to climb the mountain. The bronchial glands are often enlarged very greatly; Dr. Hall has seen them exceeding the size of pigeon's eggs. In a report issued by Dr. Betts, of Utah, it was shown that out of 200 men working in the Delamar mill, 35 had to give up the work on this account, and eventually died. A fine dust containing sharp particles of silica was the cause of the great damage done to the respiratory apparatus.

DR. C. M. COOPER, San Francisco, said that not infrequently patients present signs of apical catarrh and the sputum shows the bacilli of influenza, but no tubercle bacilli. These patients are sometimes considered to have had tuberculosis and when they get well are looked on as having recovered from that ailment. Such mistakes, while perhaps of little importance from the standpoint of treatment, render statistics unreliable. If such patients have, in former years, suffered from apical tuberculosis, the mistake is even more likely to occur and a radiogram or tuberculous injection might even tend to increase the liability to error unless the greatest care be taken. Occasionally, patients are seen in whom a mixed infection is actively present; in such cases a failure to recognize both conditions might lead to unsuitable treatment and erroneous prognosis, since the clearing up of the condition due to the influenza bacillus might lead one to think that a rapid amelioration of the patient's tuberculous lesion was occurring.

He also drew attention to the fallaciousness of supposed pathognomonic signs in the diagnosis of borderline lung diseases. During the past year he has seen a patient who expectorated, without coughing, mouthfuls of purulent sputum, in a way stated to be characteristic of abscess of the lung, bronchiectasis or an empyema which has ruptured into the bronchi. Postmortem showed simply a purulent bronchitis. In another instance when the presence of lung tissue in the sputum seemed to favor the diagnosis of an intrapulmonic collection of pus, operation demonstrated that they were dealing with an empyema which led by a narrow sinus into a bronchus. In a symposium of this kind it seemed right that the statement should always be made that acute lung lesions may so exactly simulate acute abdominal lesions as to lead to useless and harmful operations. A little while before leaving San Francisco he was called to the hospital by an interne to advise concerning an operation for an attack of acute appendicitis. The patient really had an acute diaphragmatic pleurisy but the imitation was striking.

DR. J. A. CAPPS, Chicago, emphasized one point shown by the blood pressure experiments, namely, that early tapping of the chest causes less fall in the blood pressure than late tapping. In early cases there is less likelihood of firm adhesions and the expansile power of the lung is preserved. In long-standing effusions the withdrawal should be done slowly and with caution.

DR. S. G. BONNEY, Denver, said that his experience has been somewhat different from that of Dr. Musser, with reference to the frequency of empyema complicating pneumonia. He was certain that he has observed this complication in a larger proportion of cases than were reported in the paper. He also called attention to the fact that not infrequently a purulent pleural effusion exists in the course of pneumonia without there being any rational symptoms suggestive of its presence. Its early recognition, therefore, necessitates frequent painstaking examinations of the chest at least as often as once a day throughout the course of the pneumonia.

Regarding the question which had been opened concerning the wisdom of early aspiration in pleural effusions, he would not attempt any discussion then. He wished to make exception, at least, to this invariable procedure in tuberculous cases, which, in his experience, should come under an entirely different category from non-tuberculous cases. He was satisfied that it was not good treatment to aspirate tuberculous cases, save in the presence of certain special indications. The mere existence of a moderate pleural effusion in a consumptive affords insufficient warrant for its immediate removal. If the effusion be sufficient in extent to occasion cardiac or respiratory embarrassment the indications for its immediate withdrawal are imperative and brook of no delay. He did not believe that even the character of the effusion constituted in itself a reliable guide in consumptives as to the method of procedure. It is a principle of surgery that pus wherever found should be evacuated. This should not always hold good with reference to purulent effusions in consumptives. In such cases the consideration is not so much the character of the effusion as its

9. Ransohoff, Joseph: "Discission of the Pleura in the Treatment of Chronic Empyema," Annals of Surgery, April, 1906.

* The paper of Dr. Bonney on "Chronic Non-Tubercular Diseases of the Lung" appeared in THE JOURNAL, Aug. 4, 1906.

effect or the symptoms dependent on it. If there be evidences of sepsis, as chills, fever and sweating, the indications are toward immediate removal of the pus, just as with non-consumptives. Under such conditions, no matter how great the extremity, the consumptive is entitled to the same prompt and energetic measures toward relief as the non-tuberculous patient. When there is no chill, fever or sweating, and the empyema is not of large extent, there is no special reason for the performance of a radical operation, as the resection of rib. It is better, in such cases, either to permit it to remain for the time being or to temporize by removing it by aspiration from time to time, being, of course, prepared for rib resection and thorough continuous drainage if evidences of sepsis appear. In non-septic cases of empyema in consumptives the radical operation must inevitably be followed by either one of two conditions, first, that the lung does not expand sufficiently to aid materially in this obliteration of the cavity, in which event the patient is exposed through the prolonged process of suppuration to the dangers of amyloid unless subjected ultimately to the comparatively severe Aestlander or Schede operation; secondly, if the lung does expand sufficiently to take up the cavity within the thorax, the patient is usually exposed to the danger of increased activity of the tuberculous process with the frequent cavity formation in the previously compressed lung. It has been Dr. Bonney's experience that not infrequently diminution of fever, gain in weight, and lessening of cough and expectoration have resulted following the development of a pleural effusion, irrespective of its character, and on the other hand a retrogression in the general condition and special symptoms following its removal.

TRAUMA OF THE HEAD AS A CAUSE OF INSANITY.*

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There are two important questions in regard to the relation between injuries to the head and insanity. First, Is trauma a true cause of insanity, i. e., can an injury alone, acting on a normal man of healthy ancestry who is not suffering from cerebral arterial disease, syphilis, alcoholism or any other disease which affects the brain or who has not been broken down by the mere stress of life, cause insanity, or is the trauma a mere exciting cause, a provocative agent, which acting on a man already predisposed and ready to become insane gives him an opportunity so to do? Second, Does any characteristic type of insanity follow trauma? From the mental symptoms alone, while ignorant of the history of an injury, is it possible in any given case to know that a man is insane because he has received a trauma?

As to the first question no one doubts that trauma may be the only immediate exciting cause. There are numberless cases of men who before an accident showed absolutely no mental disease at all and who became insane immediately or very soon after. Whether, however, injury alone, acting on a man in no way predisposed to insanity, can cause it has been answered both affirmatively and negatively. My own opinion is that trauma must have a suitable soil, a man already predisposed, or insanity will not develop.

My reason for this belief is that the vast majority of men who suffer injury to the head do not become insane, no matter what the character and severity of the injury, unless there be such a great loss of brain substance as to produce dementia from the direct absence of brain matter, or unless there has been such injury to the sensory speech centers as to produce dementia from abolition of the tool of thought, internal speech. What tremendous injury may be done to the brain without causing insanity is shown by the modern operations on it. It is rare, for example, for insanity to follow operations for tumor, and yet the injury done is frequently far more than that caused by severe accidents. These facts certainly indicate that, in order to become insane, something more and other than mere injury is necessary, and that it is not enough to injure the brain cells, but that they must have something within them, some quality, which makes them react in an abnormal way to injury. They must in themselves inherently differ from the brain cells of normal men. If this were not so, similar injuries would produce similar results in all men, and such is surely not the case. We are compelled, therefore, to accept the belief in a congenital or ancestral predisposing cause which so influences the brain as to make it possible for its owner to become insane. That the inherent tendency to insanity, even when very strong, may be avoided by proper education and freedom from external stress goes without saying.

Insanity sometimes occurs years after an injury, and it is often hard to determine how much, if any, causative influence the wound had. The exact relation of early trauma to late insanity is difficult to discover, because there are no accurate statistics concerning the frequency of the association of the two, because the history of traumatism is usually vague and indefinite and because late in life it is often impossible to get any accurate account of the patient's family history. There seems no doubt, however, that concussion of the brain, depressed or even simple fracture of the skull may have a causative influence in producing insanity years after in persons congenitally predisposed. Injury, however, has never been the only apparent external predisposing cause in the patients whom I have seen. In every one alcoholism, syphilis, sunstroke, arterial disease, serious irregularities of life or some severe mental or emotional stress has been present. In other words, in all the cases I have seen, beginning years after injury to the head, other causes in addition to the trauma have existed. I must make one exception to this, namely, traumatic epilepsy and hemiplegia. In such cases insanity beginning years later may apparently be the direct consequence of disease resulting from the original trauma. But even in these cases the insanity, as a rule, comes on only after the establishment of general cerebral atheroma arising from causes entirely independent of the injury, or the patient has abused alcohol or been subject to some unusual stress. I know of no case in which injury to any part of the person other than the head received years before has had the slightest influence in causing subsequent mental disease.

In answering the second question we may surely say that there is no characteristic type of post-traumatic insanity. The usual conditions are confusion, delusion, simple dementia, postparalytic dementia and epileptic insanity. Two forms of insanity, true melancholia and paranoia, I have never seen follow an injury. As to paranoia this is not at all surprising because, using the word in its proper restricted sense, it is really developmental and arises independently of any external influence. The paranoiac is predestined to be such and will fulfil his destiny, no matter what the externals of his life may be. I am aware that the word has come to be used to include so many widely different conditions that many authors mean by it any type of mental disease in which the patient reasons about his delusions, but I use

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

it to include only patients who, after a more or less aberrant puberty and adolescence, begin to be extremely egotistic and suspicious and later develop persecutory, mystical or erotic delusions or delusions concerning science or politics which they reason about and group into a more or less complete system and assign as a cause of the persecution to which they believe they are subjected. Associated with the delusion are visual, auditory or other hallucinations. This slowly increasing, and at times more or less intermitting, disease runs over many years and finally if the patient lives long enough the order and system and pseudo-logic of the delusions disappear to be followed by confusion and finally more or less dementia and death. Paranoia in this restricted sense can not be caused by injury. I have never known a paranoiac who received a serious injury after his disease was established and, therefore, do not know whether trauma ever hastens its course or temporarily increases the severity of the symptoms. True melancholia, also, great emotional depression with or without marked loss of intellectual judgment and delusions of self-abnegation or self-accusation I have never seen follow an injury. I have, of course, seen melancholia follow an injury which prevented a man from earning his living and caring for his family, but in those cases the mental and emotional shock and not the physical hurt to the brain was the cause of the disease.

I exclude from this paper all cases in which the physical injury was so trifling or the mental shock so slight that the trauma was a mere coincidence. I have also excluded post-traumatic delirium, transitory or rapidly followed by death from exhaustion. It is frequently a result of alcoholism and possibly sometimes of ether poisoning. The cases studied here are those in which the relation in time between the injury and the onset of the insanity was so close as to make it reasonable to assume that there was something more than mere coincidence.

CASE SUMMARIES.

Three of my patients were alleged to have developed paresis six or eight weeks after injury to the skull. I give only the essential points of their cases.

CASE 1.—A woodworker, aged 35, had his left frontal bone fractured in a railway accident. He made a good and rapid surgical recovery but was never well mentally after the accident. In a few weeks he became grandiose, careless as to money, obscene in language and demented. Within eight weeks of the injury, it is alleged, he had already begun to show physical signs of paresis, absent knee jerks, alteration in the iris reflexes and slurring speech.

When I saw him first, many months later, he presented the classical picture of paresis. Though it was stated that he was entirely well before the injury, I find it impossible to believe that he was. I can not believe, on pathologic grounds, that paresis could have such a rapid course and think that the trauma only increased and hastened the progress of already existing disease.

CASE 2.—A man, aged 37, an ironworker and a hard drinker, while at work on a ship fell from the upper to the lower deck, striking his head. He was picked up unconscious and on being examined at the hospital was found to be suffering from sunstroke. There was a large bruise on the scalp but no fracture of the skull. Under treatment for sunstroke he soon regained consciousness and seemed to be well for five weeks. He then had an epileptiform convulsion after which, in a few weeks, he developed symptoms of paresis.

When I examined him some months later, he presented the typical signs and symptoms. I do not think that the injury to his head had any influence in producing the disease, but that the sunstroke was the provocative agent in causing a rapid increase of symptoms.

CASE 3.—A man, aged 45, was passing under a heavy ladder, when it fell, striking him and making him unconscious. After about a half hour he regained consciousness and walked home unaided. The next day he showed no signs of injury but complained of weakness and was very nervous. He was depressed and at the same time irritable. He soon became very melancholy and in three months his speech began to be inarticulate and he heard with difficulty, or rather it was hard to make him pay attention to anything said to him. At times he did not recognize his wife and threatened to kill people. He seemed to think in a vague way that people wished to harm him but he had no clear-cut and well-defined delusions.

Examination.—When I examined him a year later his gait was slow and hesitating. There was marked sway on standing with the eyes closed. He showed ataxia in both hands. The left knee-jerk was capricious, the right increased. The pupils were equal and reacted to light. The reaction with accommodation could not be determined on account of his mental state. Speech was very slow and drawling. He understood and obeyed simple commands, but could not follow conversation. His attention could be held only a minute or two. His manner and behavior were paretic. No delusions were discovered.

When the case came to court in a suit for damages many friends and business acquaintances swore that up to the time of the accident he had been an active, healthy and energetic man. Notwithstanding these lay opinions, I believe that the injury, which, after all, was only a very mild concussion of the brain with unconsciousness lasting only a half hour, was nothing more than a provocative agent in increasing a disease already existing.

Trauma not only of the head, but of any part of the body, is a very active agent in precipitating mental breakdown in old people. The fright and emotional shock is quite as potent as the physical injury, and sometimes more so. The aged do not bear shock well and I have seen many cases in which injury has been immediately followed by beginning senile insanity. Usually this is only simple senile dementia. Sometimes the dementia is associated with traumatic epilepsy.

CASE 4.—A hard-working man, aged 60, of good habits, was thrown from the platform of a rapidly-moving trolley car. He was picked up semi-conscious and taken to a hospital. Concussion of the brain was diagnosed. He remained in the hospital two months. He never worked after the accident and appeared silly and demented. When I examined him about eighteen months after the accident, he was very silly in talk and behavior, was childishly happy and very garrulous. He had vague delusions that his friends wanted to poison him. Sometimes he recognized his wife, at others he did not. He was always worse at night, sleeping badly, getting up and walking about the house and talking incoherently. He looked like an old man and the palpable arteries were hard.

CASD 5—A man, aged 58, received a compound, depressed fracture in the left temporal region, for which his skull was trephined. Though the operation was surgically successful he never recovered his mental faculties. He was profane, obscene, garrulous and much confused. He slept badly. He had no recollection of either the accident or the operation, but talked vaguely of having been shot during the Civil War and thought it was still going on and that he was a soldier. The right arm was palsied. Later he became too demented to have any delusions.

CASE 6.—This was a case of presenile dementia, if we accept sixty years as the age of beginning senility. The patient, a man, aged 54, was treated at one of the city hospitals for fracture of the base of the skull. He never recognized his family after the accident, was noisy and garrulous, dirty in his habits, soiling his clothes and the bed, and much demented and confused. Though he has been in the insane department of the Philadelphia Hospital for two years he does not know where he is, how long he has been there nor that anything is the matter with him.

CASE 7.—A man, aged 53, after concussion of the brain, is talkative, rambling, confused and demented. He hears voices swearing at him. He has no distinct and clear delusions but is

hypochondriacal. He is noisy and restless at night and sometimes excited.

In two patients, though the injury was received years before marked mental symptoms appeared, yet the injuries seemed to stand in distinct causal relation to the insanity.

CASE 8.—A man, aged 70, was shot in the right eye in the Civil War, the right prefrontal lobe apparently having been injured. How extensively the brain was injured can not be determined. Soon after the injury he began to have general epileptiform convulsions which have continued at irregular and quite infrequent intervals ever since. He worked for years after receiving his wound, but though, at times violent, after the fits, presented no continuous symptoms of mental disturbance till about three months before being brought to the insane department of the Philadelphia Hospital. He then rapidly began to show marked symptoms. He had visual hallucinations, thinking people were pursuing him to hurt him. He also heard people swearing at him. In consequence of the hallucinations he often became violent and struck people. When I examined him he was able to give a fairly intelligible account of his earlier life, including his experiences during the war and the gunshot wound but was much confused concerning recent events. He was very silly and garrulous. Since he has been in the hospital he has been violent occasionally for a few hours after a fit. He is, however, always more or less excited at night and sleeps badly. Once, indeed, he suddenly jumped out of bed and, without a fit having occurred, assaulted an attendant. His act seems to have been the result of a dream. He has vague delusions of persecution, not concerning any one person, but people in general.

CASE 9.—A man, aged 80, suffered a simple fracture of the skull 8 years ago. After several weeks' treatment he was able to return to work but was never as active and energetic mentally as before the accident. No marked mental deterioration occurred, however, till six years after the injury when, apparently suddenly, he began to have visions of spirits and to talk to them.

When he was brought to the insane department of the Philadelphia Hospital, a few weeks later, he knew where he was and who he was, and gave a clear and apparently fairly accurate account of his early life. He claimed to see God and to talk with the Holy Ghost frequently. He attracted the attention of the Holy Ghost by tapping on the window sill, after which he would ask him if he was there, and would then begin a conversation with him. He had no doubt that he was especially chosen and favored by God. He had no realization of the fact that he was mentally ill and when told that he was he became very excited and disputatious. He argued a great deal about the correctness of his beliefs. Dementia was marked. He is best classified as a case of so-called senile paranoia. Now, two years after admission, his condition remains the same.

Both these men had all the physical signs of senility.

Injuries to parts other than the head are often active provocative agents in precipitating senile mental breakdown. Thus fracture of the leg or arm or sudden falls without any gross manifest injury, especially if the accident be accompanied by any sudden shock, as occurs in railway and trolley accidents, may be immediately followed by senile insanity. Most frequently there is simple senile dementia, but senile mania or delusional insanity may result. The mental breakdown is most likely to occur in people whose arteries are much thickened and who have already begun to show signs of what may be called normal mental senility.

In some of the patients the course of events was injury to the head, epileptiform convulsions and later insanity. Several of the patients were alcoholics in whom drinking always precipitated a fit and increased the mental symptoms. In one case I am quite sure the insanity was caused by the abuse of alcohol in a man who in early life had had a serious head injury rather than that the injury itself was in any sense the cause.

CASE 10.—Patient fractured his parietal bone when four years old and was immediately trephined. When 23 years old, some time after he had become a drunkard, he began to have general epileptiform convulsions, followed by mental confusion and silly behavior. Some time after he began to be violent after the fits which occurred in groups of 20 or 30, there being often an interval of four or six months between the groups. Later he began to be continuously surly and ugly and refused to work.

He was admitted to the insane department of the Philadelphia Hospital five years ago, when 28 years old, and was then and is now in a condition of epileptic mania.

CASE 11.—Patient, a man, aged 54, an alcoholic, had general epileptiform convulsions two months after concussion of the brain. When brought to the hospital, one year after the accident, he was confused, not only after the fits, but at all times. He had persecutory delusions that people were trying to poison him by blowing saltpeter in his mouth, and by filling his room with water. He heard people talking about him and said they were trying to make a fool of him. He did not know where he was. He had no realization of being mentally diseased but knew that he had fits and complained much of headache. He was discharged from the hospital several months later in the same condition.

CASE 12.—Patient, when 24 years old, suffered a depressed compound fracture behind the right ear for which he was operated on. At the time of the injury he was a hard drinker but his family denied he ever drank afterward. Following the injury he had a right hemiplegia but no mental symptoms till general epileptiform fits began to recur at irregular intervals when he was 29 years old. Some month later visual hallucination appeared and he became silly. At first the hallucinations were seen only after a fit.

At the age of 31 he was admitted to the insane department of the Philadelphia Hospital. He had slight palsy of the left arm, inability to tell the number of points in contact with the skin, though tactile sensibility itself was preserved, astereognosis in the left hand, and no palsy of the leg. The left knee-jerk was spastic and left ankle clonus was present. He is now, two years later, demented, quiet most of the time, but occasionally excited or even violent, especially after a fit.

One case seems to be best classified as alcoholic, traumatic confusional insanity.

CASE 13.—A brakeman, aged 39, was found unconscious on the railroad tracks with a fracture of the frontal bone just above the right eye. He remained stuporous for a week. During most of the time he could be roused enough to swallow liquids and to utter a few words. At the end of the week he began to talk a great deal but very incoherently.

When taken home, five weeks after the accident, he did not know where he was and did not recognize his family. He got up at night and walked aimlessly about the house, hunted for his clothes when he already had them on and frequently wandered away from home and got lost. He was brought to the hospital by the police and after treatment for several weeks (three and one-half months after the injury) was discharged apparently well.

Another case is best diagnosed as alcoholic, traumatic delusional insanity.

CASE 14.—Patient, aged 54, received a concussion of the brain by being struck by a locomotive. He had been a drunkard for years. He was never in good mental health after the accident, and never went back to work, but at first he seemed only a little silly and lazy. A year later he began to be delusional, thinking people were persecuting him. He would go over the house at night in search of enemies. He also doubted his wife's fidelity. Now, three years later, he has the same delusions and is demented.

One patient's case was very interesting on account of the presence of auditory hallucinations associated with injury to the left temporosphenoidal lobe.

CASE 15.—A negro, aged 30, sustained a depressed fracture behind the left ear from a blow from a baseball bat, for which he was trephined on account of pressure symptoms. What the

immediate result was I do not know, but a few months later he was partially word deaf and at the same time had auditory and visual hallucinations. He soon became unmanageable, and was violent and abusive. He had delusions of persecution. In the course of many months he became completely demented and died of erysipelas and uremia. The brain showed distinct injury to the auditory speech center.

Sometimes after an accident in which no or slight physical injury has been sustained, but in which the patient has been greatly frightened, distinct mental symptoms, temporary or permanent, follow, as in the following case:

CASE 16.—A man, aged 37, was only slightly hurt in the muscles of the back in a collision of two trolley cars. Several other people were severely injured and the circumstances of the accident were very horrifying. From the time of the accident until I saw him eighteen months later, he had been very stupid. If sent on an errand he would forget what he was sent for and would get lost in the street. He would give irrelevant answers to questions and from having been an industrious man had grown lazy. He not only took no interest in his family, but was entirely indifferent to them. He simply sat about, ate and slept. He had no hallucinations or delusions.

Unfortunately I could get no really accurate information of this patient's past life beyond the fact that, though industrious, a good workman and a man who took care of his family, he had been a steady but not excessive drinker for years. I am strongly inclined to believe that had his habits been better he would have escaped any permanent injurious results of the accident.

I have seen several cases of what for want of a better name I must call temporary weakmindedness following serious injury or shock with little or no injury. The severe cases all occurred in neurotic youths. Several had bad family histories. The following is a typical case:

CASE 17.—B. D., aged 18, had graduated from a high school with honor and had done well at his work in one of the large financial corporations. The officer of the corporation immediately above him spoke very highly of him to me, but said he was always sensitive, anemic, and worked beyond his strength. He was very neurotic and his family history was bad. He was in a railway car when a collision occurred and the car was thrown down an embankment. Several people were killed, but he received no physical injury. He went home and the next day tried to work, but could not do so on account of nervousness.

When I saw him first several weeks later he was listless, sluggish in thought, careless about his personal appearance, and altogether dull and stupid. His hands were bluish-red, mottled, cold and wet. The pupils were dilated and the pulse rapid. His gait was slouching and his attitude stooping, with one shoulder higher than the other. I feared he was in the beginning stages of adolescent dementia. I sent him to the country, compelled him to take a great deal of outdoor exercise, and to eat much plain food. After three months he began to improve, and at the end of a year was able to resume his former position, a fairly healthy young man.

Very frequently families claim that the imbecility of a son or daughter has been caused by some injury to the head received a short time before the symptoms were noticed. As a rule, questioning proves the injury to have been too slight to have had any effect whatever. In other cases observation of the father or mother shows plainly that the real cause has been a bad heredity. A very few of the patients have sufficient mental stamina to withstand the ordinary stress of life, but not enough to withstand a serious concussion or the shock of a great fright. On the other hand, I have seen several imbeciles made much worse by injuries to the head.

I wish to thank Dr. W. W. Hawke for his great assistance in studying the patients in the insane department of the Philadelphia Hospital.

DISCUSSION.

DR. W. G. SPILLER, Philadelphia, said that the degree of injury should be borne in mind, and that he can not agree with Dr. Burr in saying that trauma is never an exciting cause of insanity. It depends on what is included under the term insanity. A patient, who was under Dr. Spiller's care for a long time, had an injury of the left side of his head with word-deafness; a few years after the injury he developed hallucinations of hearing and sight, with delusions of persecution, probably the result of a large lesion in the left first temporal convolution. Dr. Spiller said that he had under his care, at the University Hospital, a man in perfect physical health, with no history of insanity in the family. In January he fell and struck his head, and is now depressed, confused and delusional, and Dr. Spiller doubts whether he will entirely recover. Dr. Spiller thinks it would be assuming too much to say that trauma is merely the provoking cause of such states. Not infrequently, after injuries to the head, a very decided change is seen in the mental condition, which can not be understood from a pathologic standpoint. In at least some of the cases they are minute hemorrhages or minute areas of softening throughout the brain caused by trauma. Dr. Spiller has always been suspicious of so-called cases of paresis produced by trauma. In many instances the patient has had syphilis, perhaps ten years previously, and the trauma has been merely an exciting cause.

DR. F. X. DERCUM, Philadelphia, agreed fully with the position assumed by Dr. Burr in regard to trauma as a cause of insanity. Dr. Burr does not claim that trauma is a cause of manic-depressive insanity or of paranoia, but that it causes confused mental states; it is provocative of delirium, of confusion and of stupor. Dr. Dercum did not understand Dr. Burr to say that trauma causes paresis, but that trauma may be an exciting cause of paresis. In cases of old syphilitic infection, the patient may be on the verge of paresis and may be so depressed by shock or concussion as to lead to the speedy development of paresis.

DR. HERMAN H. HOPPE, Cincinnati, referred to a particular case that came under his observation. A man fell only a short distance from a ladder and had some very serious brain injury. He was delirious for a few weeks, and when Dr. Hoppe saw him he presented the typical picture of paresis; he had the Argyll-Robertson pupil; there was absence of patellar reflexes, and a most careful physical examination, together with the family history, failed to reveal any specific infection. The man was addicted only moderately to the use of alcohol. Dr. Hoppe said he mentioned this case to exemplify the fact that there may be exceptions to the rule.

DR. H. A. TOMLINSON, St. Peter, Minn., confirmed from his own experience the conclusions of Dr. Burr. So far as his experience goes, there is no relation between the nature and extent of the trauma, and the kind or degree of the mental disturbance. Indeed, the most serious mental aberration may be associated with the slightest degree of cranial trauma; while extensive injury to the brain and its coverings frequently occurs without resulting mental disturbance. These facts seem to him to be good evidence that there is no direct relation between the trauma and the insanity; and that these apparently exceptional cases may be explained after a more careful and detailed study of the personal history and heredity of the individual. So much depends on what is meant by instability and defect; and the absence of the history of mental alienation in the parents or near relatives does not preclude the possibility of the parents having bequeathed a faulty nervous organization to the child, as the result of some constitutional condition affecting the somatic welfare of one or both of them. It is because this possibility is so commonly overlooked that cranial trauma is so frequently heard of as being the direct cause of insanity. Several instances of developmental cases in which progressive dementia follows slight injury to the head have come under Dr. Tomlinson's observation. In the study of the brain in cases that have come to necropsy, and in three cases in which operative interference was undertaken, with the belief that the removal of some hypothetical cause of pressure would restore mental capacity, he has noted that the degenerative changes begin

in the convolutions surrounding the insula, without regard to the location of the cranial injury, on the left side in right-handed persons, and on the right side in left-handed persons. Another interesting fact in this connection is that extensive injury to the frontal lobes of the brain frequently occurs without mental aberration or reduction, but with serious sensory or motor involvement instead. It is true that very often there is more or less temporary loss of sensory capacity, which, after a time, gives rise to apparent mental reduction; because the individual is no longer able to adapt himself to the conditions in his environment, as he does not appreciate them. Dr. Tomlinson believes that the mental disturbance that follows cranial trauma is always the result of a pre-existing cause that the trauma has made active.

DR. P. C. KNAPP, Boston, took exception to Dr. Burr's statement that insanity is always due to the previous nature of the individual, and especially to Dr. Tomlinson's statement. Dr. Knapp thinks that there are numerous cases of serious mental impairment, which are due directly, and almost solely, to trauma, viz., cases in which there has been some severe injury to the head, which, as Dr. Spiller said, is subsequently followed by more or less minute hemorrhage and considerable injury to the cortex of the brain. Dr. Knapp is very skeptical of the cases of extensive injury to the cortex not attended with mental symptoms; they may not come under the classification of "insanity," but there is always considerable mental involvement. He has seen a number of such cases go on progressively to dementia, cases in which there has been nothing whatever in the previous history of the individual, or in the heredity to explain the process, except the direct injury to the brain itself. So far as general paresis is concerned, he has never seen a case in which he could consider that the trauma was the exciting cause, although he believes it possible that trauma may be the last straw which will produce paresis in the syphilitic, who, if he had not received the trauma, might have been exempt. It is, of course, a common experience, both in general paresis and any other chronic degenerative disease in the nervous system that a very marked exacerbation of the disease may follow very slight or very severe trauma. In cases of either shock or injury of slight character to the head, or injury to other parts of the body, his experience has been that the trauma of itself may be the exciting cause. It has usually produced a state of more or less amnesia, confusion and apathy, conditions which are rather apt to be curable. He does not believe that true paranoia can be produced by trauma. Paranoia is not so much a disease as it is the physical malformation of the individual. There are occasional conditions which follow trauma, especially in neurotic individuals, in which there is for a time acute hallucinosis, with some delusions, which are usually not very serious, and seldom become definitely systematized. The trouble is not usually of a prolonged character, but at first it may seem like simple paranoia. Dr. Knapp said that he has seen conditions which follow trauma, and which formerly would have been described as chronic mania; at present many speak of the condition as "manic-depressive insanity" (which term Dr. Knapp refuses to use). He recalled one patient in whom the injury was followed by apparently mild hysterical symptoms, which speedily developed into delusions and very marked and grave hallucinations. This patient finally became one of the most violent and excited patients the Boston Insane Hospital had had for several years. In cases of that sort other conditions come into play, although in this particular case there was no heredity, simply a mild neurotic family history and no toxic influence. Dr. Knapp thinks that trauma is only an incident in cases of paranoia.

DR. RICHARD DEWEY, Wauwatosa, Wis., spoke of a paper presented many years ago at the meeting of the American Medico-Psychological Association by one of the physicians at the Homeopathic State Hospital in New York, entitled "Traumatic Insanities and Traumatic Recoveries," in which the author cited two cases, in which recovery had followed injury to the head. From his experience with brain trauma, Dr. Dewey believes that unless there are some other contributing causes, it very rarely causes insanity. One is often impressed with the fact that the family and friends of patients exaggerate greatly the importance of injuries, being anxious to find a cause for insanity in some injury rather than in any inherent tendency. In some of these cases there is a "traum," in the German sense of the word, and "Traeumerei" rather than "traumatism" describes the case.

DR. W. ALEXANDER JONES, Minneapolis, agreed with Dr. Burr as to the etiologic value of trauma in insanity, and said that he had taken a practical view of the situation in not limiting himself to any definite trauma. Dr. Jones added that in psychopathic subjects any degree of injury may be associated with almost any form of insanity. It is the individual rather than the character of the injury that is most significant.

DR. JULIUS GRINKER, Chicago, agreed with those who claim that trauma may produce insanity directly, and said that he did not think so until two cases came under his observation, in which every other cause could be excluded. In the first case there was no history of syphilis, only a moderate degree of alcoholism, and the patient had been well until a bag of flour, weighing 150 pounds, fell on his head. This trauma caused loss of consciousness for about one hour and the patient gradually recovered. Three or four months later he developed all the signs of paralytic dementia. Dr. Grinker declared that he hesitated to call the case general paresis, because he was under the impression that trauma could not produce paresis, without syphilis, or other contributory causes, but he decided to call it traumatic dementia, and as such he presented the case to the Chicago Neurological Society, in which diagnosis the members acquiesced. The patient subsequently died of hemiplegia, and whether death was caused by the trauma, primarily or secondarily, is, of course, doubtful. Perhaps arteriosclerosis following the trauma acted as a connecting link to cause a fatal termination. Dr. Grinker has another patient under his care with a similar history. This patient had been perfectly well, working all his life, never missing a day, until the trauma occurred. He had never shown any of the mental and physical signs of a character that developed after the trauma. Since that time typical mental signs of general paresis have developed. In these two cases Dr. Grinker feels quite certain that trauma acted as the sole cause, or at least as the sole tangible cause, of the insanity.

DR. ALFRED GORDON, Philadelphia, spoke of the effect of trauma on the development of mental affections. His experience, which extends over a considerable number of cases, has taught him that there are cases of paresis which begin to develop their symptoms after mild or insignificant trauma. Recently he has had some very important and very instructive cases from this standpoint. A patient with paresis came to the Jefferson Hospital, Philadelphia. The patient's relatives denied any syphilitic history, and the diagnosis was put down as paresis, with trauma in parenthesis. About a week later the brother of the patient came to Dr. Gordon's office and told him that the patient had a syphilitic infection about ten years before. This is merely an illustration of the fact that proper histories of the patient, so far as syphilitic infection or hereditary influence is concerned, are not always obtained, and extreme care must be exercised in saying that there is no specific or other involvement, when all the history obtained is that from the direct examination of the patient. Dr. Gordon thinks Dr. Burr's remarks in connection with trauma perfectly proper, and agrees with him that trauma does not directly produce paresis or any other typical, classical psychosis, but may give an impetus to a previously existing mental affection. He remembers cases in which the symptoms of paresis began to develop after insignificant as well as marked traumata. It is difficult to understand how an insignificant trauma is liable to produce paresis. There is no question, in his judgment, that those cases which develop paresis, following trauma, undoubtedly presented symptoms of paresis prior to the trauma.

Anilide.—Anilides are derivatives of anilin (benzene-amine, benzamine or phenamine, $C_6H_5NH_2$) in which a hydrogen atom of the NH_2 group has been replaced by an acetyl group, thus $C_6H_5NH(CH_3CO)$ is acetanilid.—*Pharmaceutical Review.*

MIGRAINIC PSYCHOSES.

APROPOS OF TWELVE CASES.*

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The most recent researches in the domain of physiologic chemistry lead to the view that migraine finds its logical explanation in a pathologic metabolism and that the immediate cause of a migrainic attack lies in autointoxication. Whether it is uric acid, as championed by Haig, or special ferment or ptomain, as advocated by Friesser, it is not completely elucidated. The fact is, that in the majority of cases, if not in all, there is an element of gastrointestinal disorder. *A priori* one can say than an attack of migraine suggests a cerebral poisoning. The headache and other cerebral symptoms observed in a migrainic attack are analogous to the same symptoms in diseases of the meninges and tumors of the brain. It is possible that in migraine the primary cause is of a cerebral nature and the digestive disturbances are brought on by the condition of the brain. Practically speaking, there is a vicious circle in regard to the relation of brain and gastrointestinal tract and migraine.

Abundant material concerning mental disturbances in endogenous and exogenous intoxications is now on record. The studies of indol, indoxyl, indican, skatol, acetone in their relation to certain psychoses are too well known to dwell on. Interesting and instructive are the studies of Richardson,[1] who made exact quantitative estimation of indol in various mental and nervous disorders. The conception of autointoxication is so far advanced that a number of diseases can be readily explained on this basis. Suffice it to mention, mental disturbances following infectious diseases or puerperal states, to see that a toxemia is the immediate causative factor of the cerebral derangement. In this connection it is interesting to call attention to the observations on variation of leucocytosis. When leucocytosis is artificially stimulated (which is Nature's method of combating toxins) there is an improvement in the patient's condition.

Among all the organs which are capable of becoming the seat of endogenous intoxication, the gastrointestinal tract is the most important. It is the *fons et origo* of various toxins.

Observation shows that there is a great analogy between the cerebral manifestations in intoxications of endogenous or exogenous sources. While in one group of cases there is depression, in another there is exaltation and restlessness. These two states may alternate, succeed each other rapidly, and may be accompanied by hallucinations. The multiple mental phenomena observable in such cases can be summarized in three forms: Confusion, delirium and stupor. The first two are associated very frequently to a various degree.

In migraine, which is so intimately associated with disordered metabolic changes, mental disorders are also observable sometimes. When the latter occur, they are undoubtedly occasioned by the same obnoxious metabolic product as the migraine itself. That this is mathematically correct can be seen from the fact that both morbid processes appear and cease almost simultaneously.

Association of migrainic and mental symptoms is not at all surprising. The same toxic product originated in those arthritic, gouty, obese and constipated individuals, by circulating in the blood, will in certain cases produce meningeal and bulbar symptoms (headache and vomiting) plus mental disturbances. It is true that the mental symptoms are not frequent, but close observation will show that they are always present although in a mild form; in every case of typical migraine there is some degree of mental dulness, apathy and confusion and, not infrequently, mild delirium.

Within the last four years I have succeeded in collecting 12 personal cases of typical psychoses observed in migrainic attacks. They all fall in the above mentioned three groups. The mental phenomena observed are identical with those of infections or intoxications of any nature. They all presented pronounced confusional states with or without delirium, with or without delusions, with or without hallucinations. They were all types of the classical primary psychoses, the etiology of which frequently escapes our observation.

CASE 1.—M. S., married woman, aged 35, had had attacks of hemicrania for five years. At the beginning they were typical in character, viz., presented nausea, pain in the right temple, appearing in the morning and disappearing toward evening. Later these symptoms began to be accompanied by mental disturbances. About an hour after the headache made its appearance, the patient became restless, would move from one place to another, or would run on the street until some one would stop her, would talk loud in incoherent manner and make gestures. She evidently had visual hallucinations, as she was addressing some one. She was unable to recognize relatives and mistook relatives for strangers; she evidently presented illusions of identity. This condition gradually disappeared at the end of the day, when she vomited and went to sleep. On the following day the patient could not recall a single phase of her attack.

Attacks of this nature occurred five times within the last year. Otherwise, viz., between the attacks, the patient was entirely normal. There is nothing worth mentioning in her personal history prior to the onset of migraine. Patient was obese and each attack followed a period of obstinate constipation. There were no hysterical stigmata.

CASE 2.—L. B., woman, aged 48, suffered from migraine for 20 years. During the last 10 years mental symptoms accompanied each attack of headache. Visual and auditory hallucinations were marked; she would see flashes of green and bright lights and hear voices, which she was unable to distinguish. The latter were so annoying to her that in order to silence them she would scream at the top of her voice. As they lasted only two or three hours she would then enter into a state of mild stupor; would sit in a corner of a room, groan and moan, hold her head in her hands, vomit bilious fluid and was somewhat confused. At the end of the same day the condition would clear up and the patient would fall asleep. On the following day the hemicrania would continue, though to a less marked degree.

There is an interesting observation concerning the character of sleep. On several occasions it was noticed that she would talk considerably during her sleep, express at times joy and at others fear; she would struggle for breath. When awake she would continue to use the same expressions and present the same facial features as during her sleep. The personal history presents this interesting feature: that until the age of 18 she had epileptiform seizures and at 28 the migrainic attacks appeared. There was also migraine in several members of the family. There were no hysterical stigmata.

CASE 3.—L. L., girl, aged 17, had attacks of hemicrania with vertigo, nausea and ocular pain for 5 years. Occasionally an attack would be accompanied by mental phenomena. She would become delirious, restless, run out of the house, gesticulate, talk in incoherent manner and refuse to recognize her relatives. Visual hallucinations were also present, as she would look at objects and address them. The condition would last about four hours, after which she would be in a state of slight mental hebetude, complain of severe pain in the right temple,

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. Bull. of Labor. of Mt. Hope Retreat, 1899.

of photophobia and pronounced nausea. Profound sleep would end the attack. There were no hysterical stigmata and nothing in the personal or family history.

CASE 4.—B. P., woman, aged 42, had had attacks of hemicrania for 15 years. During the attacks of last year mental symptoms developed. Shortly after the headache reached its climax, the patient became confused; feared the approach of people, and feared to look at the wall, as the pictures appeared in the shape of animals. She kept her hands on her eyes, as she dreaded to look up. She was very suspicious, refused to drink water when it was given her, saying, "perhaps there is poison." While in this condition she would occasionally grasp her head with her hands and scream from pain. The mental symptoms, as just described, lasted 8 hours, and then the head pain would become aggravated. The patient ended the attack with a vomiting spell. In the personal previous history only cholera at the age of 8 and 10 could be elicited. Many members of the family are migrainic. No hysterical stigmata were noted.

CASE 5.—S. Mc., woman, aged 54, had had migraine since she was 34. There had been two periods of mental disturbances during the attacks. First period was at the age of 40, five attacks in all; second period at the age of 48, twelve attacks, one every three weeks. The character of the mental phenomena was similar in both periods. Confusion predominated. Hallucinations concerned mainly the visual sphere and in one attack there was a gustatory hallucination, in which the patient felt the taste of salt in her mouth, when she did not eat or drink during the entire day.

The last attack is interesting. Patient developed delusions of persecution, believing that everybody disliked her, that she would soon be put to death. When questioned, she could not give any reason for it nor could she point out any special person. The persecutory state disappeared with the hemicrania which lasted sixteen hours. The same phenomena have been observed also during sleep; she talked, made motions with her hands, made occasionally unintelligible exclamations. Previous history of the patient was negative. In the family several members present migraine, also attacks of gout. There were no hysterical stigmata.

CASE 6.—P. L., girl, aged 24, had had attacks of essential epilepsy during 5 years since the age of 16. From the age of 21 she had had attacks of typical hemicrania with nausea and vomiting, lasting six hours and occurring once a month during menstrual periods. An hour after the onset of the pain in her head the patient would become violent, strike people around her, break dishes. When spoken to she appeared bewildered and unable to understand or to recognize her whereabouts. Then suddenly she would become calm, grasp her head and scream from pain. Nausea and vomiting followed. After a sleep of 9 hours the patient would awake without headache, but an asthenic state with marked confusion would last yet for two days. During her sleep she would keep up a conversation, struggle and make motions with her hands. The same attitude was noticed for a few hours after she awoke. Previous personal history showed chorea in childhood. A brother had epilepsy; the mother had migraine.

CASE 7.—C. K., woman, aged 38, had had typical hemicrania for the last three years, occurring at first every three months, but during the last year every five or six weeks. When the attacks became frequent, mental symptoms would occasionally follow an attack. They have not been all alike; at one time she would be delirious, at another would present only hallucinations or merely a confusional state.

In the last attack which I had the opportunity to witness and treat, I noticed a typical form of hemicrania limited to the left side of the head accompanied by severe pain in both eyes and nausea. At the end of 8 hours patient fell asleep. Four hours later she awoke astonished at her surroundings; fear and suspicion were on her face; she suspected everybody who addressed her or approached her. Suddenly she fell on her knees and began to pray aloud; this lasted 15 minutes. At the end of this time she began to laugh and for five minutes she could not be pacified. When the laughing subsided, she became morose, taciturn, sat in a corner of the room and remained immobile for 90 minutes. She went to sleep again and awoke at the end of 8 hours in perfect condition. There was an absolute amnesia of the occurrence. The picture of the last attack was certainly of hysterical nature. Indeed, the patient presented a considerable number of hysterical stigmata; areas of anesthesia, of hyperesthesia, contraction of the visual field, and pharyngeal anesthesia. In the intervals between the attacks she frequently had hysterical paroxysms of crying and laughing. Family history was negative.

CASE 8.—O. G., woman, aged 44, had had hemicrania during 20 years occurring about every three to four months and lasting from 24 to 48 hours. For the last six months patient developed mental disturbances, some immediately preceding an attack, some during the attack and some following the attack of migraine. The nature of the mental phenomena was that observed in confusional insanity with the preponderance of illusion of identity. The duration of the mental symptoms was only from two to four hours. Between the episodes of the migrainic psychoses the patient also had attacks of hemicrania free from mental symptoms. Otherwise, the personal previous history, also family history, was negative.

CASE 9.—A. O'N., man, aged 45, gouty, had had hemicrania since the age of 25, occurring every four months after a period of obstinate constipation and lasting four days. There was a large number of attacks with mental symptoms, which have been conspicuous by their sudden onset and sudden termination and followed by a profound sleep. They usually occurred when the headache reached its climax and they were similar either to confusion or mild stupor. Hallucinations were always present, more visual than others. On several occasions hallucinations of smell predominated. On two occasions he attacked his people in the house, believing himself persecuted by an invisible agent. Patient's sleep was peculiar. He apparently suffered from terrible dreams, as he would fight, talk loud, express fear on his face and at times cry. The history of the patient showed that the attacks of migraine alternated with those of gout. Family history was negative. No hysterical stigmata were noted.

CASE 10.—J. K., man, aged 60, had had hemicrania for 35 years, occurring every three months when younger and later every six months. Patient remembers having only five attacks with mental disturbances. The latter were described by his wife. They would appear toward the end of the migrainic attack and consisted of a tendency to run away, fearing invisible agents (hallucinations); he would scream for help, strike against obstacles. This lasted about two hours, after which he became calm, but was confused for two days. A profound sleep would naturally follow and clear up the entire condition. Previous history showed chronic rheumatism and obesity. Family history was negative. There were no hysterical stigmata.

CASE 11.—M. Q., woman, aged 47, had had hemicrania since 36 years of age at the end of each menstrual period. There had been several attacks with mental disturbances, which consisted of a marked confusion with illusions of identity. Once I had the opportunity to witness this condition; the patient addressed me as her own brother and talked in incoherent manner for several minutes. The confusional state always followed the attack of hemicrania and lasted from five to six hours. Personal previous history showed marked obesity and attacks of lumbago. Several members of the family suffer from gout.

CASE 12.—J. S., girl, aged 28, had had hemicrania since the age of 23, occurring every five months. Each attack was accompanied by more or less marked mental disturbances. While the headache was severe, the patient showed pseudo-reminiscenses; would speak of events which occurred in her childhood or youth but would present them in a false light, while she could recall them correctly in the intervals between the attacks. At the same time she would laugh like a child, be restless and see invisible things (hallucinations) which she would address in a familiar manner. At another time a confusional state with vague delusions of persecution would follow an attack of migraine. Once she presented only hallucinations of hearing and sight and conversed with invisible beings for 30 minutes in such a manner that delight and pleasure could be seen on her face. The mental phenomena in this case always terminated abruptly by a spell of crying. This patient had many hysterical stigmata, among which left hemianesthesia was the most prominent. Family history was negative.

CONCLUSIONS.

The histories of the twelve cases present this remarkable similarity that in the majority, if not in all, there are three mental states that have been inevitably found, viz., confusion, mild stupor with hallucinations and sometimes vague unsystematized delusions and delirium. The hallucinations which are so frequent are mostly visual; some patients had auditory and some gustatory hallucinations. The confusional state predominated in all my patients. It was quite frequently accompanied by illusions of identity, incoherence of thoughts and language, disturbance of orientation. The delusions are all of a fleeting character and unsystematized.

Some of the cases suggest psychic forms of epilepsy, as, for example, when the patient runs on the street until stopped, or when the patient presenting a mild delirium with agitation ends his attack with a profound sleep. In a few cases the attack of migraine ended with a state analogous to a post-epileptic state, viz., mild confusion with a condition of profound exhaustion.

In cases 7 and 12 the mental disturbances presented a hysterical character; in one of them a typical attack of hemicrania of eight hours' duration ended in a four-hour sleep. When the patient awoke she began to show a mild delirium with hallucinations, talking aloud and laughing. In the second case the mental disturbances also consisted of a mild delirium with pseudo reminiscences and hallucinations. In another attack of migraine the same patient was in a state of confusion with vague delusions of persecution and hallucinations. Both patients had hysterical stigmata.

As to the time of appearance of the mental symptoms in relation to the migrainic attack, in the majority of my cases they developed during the attack when the headache reached its climax and disappeared with the headache. In some cases they continued for 24 hours after the subsidence of the migraine. In a few cases the mental symptoms appeared at the end of the attack, in some only after the attack and in one case they preceded the migrainic paroxysm.

The question has often arisen whether the transitory psychic symptoms observed in migrainic paroxysms are the result of the migraine itself or are manifestations of other neuroses, as epilepsy and hysteria gravis. That migraine may, in a certain group of cases, be of epileptic nature, i. e., equivalent to epileptic seizures, is a well-known fact. In such cases we find the aura, which is usually ophthalmic and in both cases may be seen psychic complications. The same consideration can be applied to the relation of migraine to hysteria, in which the migrainic attack may become the exciting cause of a hysterical paroxysm. Cases 7 and 12, mentioned above, are suggestive in this respect.

If these remarks are applicable to some cases, by no means can they be considered in every case. Confining myself exclusively to the 12 personal cases, I am not at all justified in concluding that "epilepsy" or "hysteria" views are capable of explaining the observed psychic manifestations. On the contrary, in the majority of my cases the onset of mental symptoms coincided with the moment when the headache reached its climax and not at all suddenly. Their duration, onset and course do not suggest epilepsy. In the two hysterical cases, while the mental manifestations are analogous to hysterical psychic phenomena, the latter also made their appearance in the stage of full development of migrainic attacks.

Mingazzini and Pasetti,[2] who made special studies of the subject, take the stand that the psychoses observed in migraine are independent and specific, and, so to speak, characteristic of migraine. This assertion of the Italian writers is not justifiable, at least from my present studies. The confusional, stuporous or delirious states, the hallucinations, the illusions, the unsystematized delusions, the amnesia—are not in the slightest degree clinically distinguishable from those observed in the same psychoses in other circumstances.

Confusion due to exogenous intoxications, like alcohol or others, is not unlike a confusion originated during puerperium in which autointoxication is a certainty. So is a delirious state or a stuporous state, so are delusions and hallucinations or amnesia. These psychoses are, therefore, not independent psychoses in the sense of Mingazzini. There is nothing especially characteristic in the migrainic psychoses that can differentiate them from the same insanities caused by other causes.

The point of importance concerning migrainic psychoses consists of their intimate association with the same causes that produced the migrainic attacks themselves, and this is autointoxication. The histories of migrainic patients are all identical: Constipation, obesity, hereditary predisposition, all figure in the life of such patients. Autointoxication, therefore, is to be expected and, indeed, it is frequent. Régis called attention in 1894, to a special form of delirium called delirium of dreams (*délire onirique*) which is frequently found in psychoses of toxic origin. It consists of hallucinatory images and of old events in various combinations, originating in dreams and continued after the patient awakes. If they disappear, they may be reconstructed during the day as soon as the patient closes his eyes. There is, so to speak, a "prolonged dream."

Originally Lasègue observed it in alcoholic delirium, but according to Régis it may be encountered in intoxications of any origin. In his opinion, it is characteristic of toxic psychoses. In my study I could observe this form of delirium only in three cases. These patients presented a sort of a second state, during which they spoke in the same manner and on the same subject as during their sleep.

The present study concerns a subject which is of some importance not only from a scientific, but also from a practical standpoint. The literature is not abundant with examples of migrainic psychoses. Suffice it to mention the names of Loewenfeld, Brackmann, Koppen, Féré, Agostini, Möbius and particularly of Mingazzini with Pasetti and Krafft-Ebing. The majority of these writers view the condition as a manifestation of hysteria and epilepsy. Mingazzini and Pasetti consider the mental disturbances as specific of migraine. In my personal opinion, based on the 12 cases, the psychoses may sometimes present features of hysteria and epilepsy, when there is an underlying basis of these two neuroses, but, on the other hand, they present nothing specific in the sense of Mingazzini. They are intimately connected with the original cause of the migraine itself, viz., toxic. As to the forms of the migraine insanities, they are confusion, stupor and delirium.

DISCUSSION.

DR. S. WEIR MITCHELL, Philadelphia, said that the attacks which Dr. Gordon described are sometimes preceded as in epilepsy at times by a sense of physical comfort and ease and occasionally by a sense of unusual mental competence. He has seen this in a number of cases. He spoke of the frequent loss of power on one side of the body, usually on the right, that accompanies some form of migraine and referred to a family, consisting of a father, mother and six

2. Rivista Sperimentale di frenatria, xxv.

children all of whom have these migrainic attacks, and in all of whom the headache is preceded by a sense of great physical comfort, so that they know perfectly well when they are going to have an attack. When these attacks come on, there is some loss of power on the right side of the body, which usually passes away in about twenty-four hours, while in other cases there is more or less temporary aphasia. Dr. Mitchell could not agree with Dr. Gordon's frequent reference to casual toxic conditions. To Dr. Mitchell's mind there is not the slightest proof to-day, that either migraine or epilepsy is caused by a poison. He looks forward with hope to the time when poisons will be found which gather in the body and gradually accumulate until the patient develops migraine or epilepsy. One question must then be asked in every case in which a poison from any source within or without the body is claimed or proved to be the cause of occasional morbid manifestations. "What becomes of this poison, after it is developed?" Has it exhausted the power of further disordering or is there something in the condition of migraine, for example, which in some mysterious way rids the system of this poison?

DR. CHARLES K. MILLS, Philadelphia, said that what migraine really is must not be overlooked. The basic cause of the affection is heredity. All the treatments directed to the elimination of poisons from the system will never eradicate migraine from the life history of the individual. Dr. Mills has a close personal knowledge of two cases of migraine in two generations, and a historical knowledge of the existence of typical migraine in five generations in the same family. Doubtless the individual in each of these five generations has developed many poisons on different occasions. Migraine is a teratologic disease; it is interchangeable with epilepsy and grave hysteria and similar affections belonging to the same general class of constitutional affections. In cases of migraine, however, there are some individuals in whom the highest functions are not impaired throughout their lives, unlike epilepsy in which degeneration takes place sooner or later. If the disease is carefully studied and personal experience used the conclusion that migraine is a disease of the individual will be reached. It is all right to treat the symptoms of toxemia if they exist, but there is too much tendency to make toxins the basic causes.

DR. GEORGE L. WALTON, Boston, said that it is important to recognize the relation of these temporary psychic disturbances to migraine in order that the patient may be reassured regarding the onset of epilepsy or of grave mental defect. Aphasia and temporary confusion may certainly precede, and, in some cases, apparently replace an attack of migraine. Dr. Walton regards these conditions as analogous to the temporary blur of vision which precedes migraine. The sufferer from migraine may be assured that he is in no danger, on this account, of becoming an epileptic. Migraine lacks two essentials of epilepsy, namely unconsciousness and brief duration. It lacks also the diagnostic, though less constant, symptoms of biting the tongue, passing the water and injuring the face or other part of the body from falling. The coincidence of migraine and epilepsy in the same patient should be regarded merely as cumulative evidence of "deviation" the symptoms having no other relation. Dr. Walton thoroughly agrees with Dr. Mitchell and Dr. Mills regarding the non-toxic etiology of migraine. The condition is doubtless due primarily to constitutional make-up with, in Dr. Walton's opinion, eyestrain as a more common exciting cause than is generally conceded.

DR. C. EUGENE RIGGS, St. Paul, Minn., agreed fully with the experience of Dr. Walton in regard to there being no intimate relation between epilepsy and migraine. Dr. Riggs referred to Dr. Mitchell's statement concerning loss of power in migraine and mentioned a case of a medical man who was supposed to have had a stroke of apoplexy. A physician called to see him and told his wife that he could not live more than twenty-four hours. There was complete paralysis on one side and motor aphasia; the sensory disturbance was marked and the pain in the head intense, but in the course of twenty-four to thirty-six hours he had entirely recovered.

DR. W. G. SPILLER, Philadelphia, said that no mention had been made of the vascular theory for certain cases of migraine. It is not new and there is something to be said in its favor. The symptom-complex sometimes seen is suggestive of vascular disturbance of one side of the brain. Possibly in some cases of migraine there is a condition similar to that of intermittent claudication of the limbs.

DR. L. H. METTLER, Chicago, said that the one argument that migraine is not due to toxemia is the fact of its more or less regularity in onset. Take a typical case of migraine, watch it over a considerable space of time, and it will be found that there is a kind of periodicity in its appearance, which could not be explained if it were caused by general toxicity. In other words, the burden of proof rests on those who assert it is due to toxicity to prove that it is due to this cause alone, and to show that this cause occurs at the same time with the same degree of periodicity. This is a very important argument. Dr. Mettler emphasized Dr. Mills' statement that this disease is essentially a neurotic condition.

DR. G. L. WALTON, Boston, said he has had two attacks of aphasia which lasted for a few moments only, preceding the headache, at the time the blur ordinarily comes on, and on two other occasions he has had temporary mental confusion, lasting for a few seconds. He agreed with all Dr. Fisher had said. Dr. Walton said that at any time he can start an attack of migraine by giving a little tilt to his spectacles, but he does not regard eyestrain as a material cause of the unfortunate psychic and physical make-up of "deviate" individuals. Concerning Dr. Mitchell's observation that the patient is often unusually well preceding the attacks, Dr. Walton gave the explanation that individuals with this make-up are peculiarly liable to various psychic peculiarities, among others a suggestion of manic depressive states.

DR. P. C. KNAPP, Boston, said that in regard to the toxic theory of migraine, there is one point, which bears on what Dr. Spiller said, namely, that in toxic conditions, as a rule, the symptoms are expected to be bilateral. In a certain percentage of the cases of migraine there are symptoms pointing certainly to localization in the brain, for example, of course, the symptoms of hemianopsia, aphasia or hemiplegia.

DR. F. X. DERCUM, Philadelphia, was glad that Dr. Gordon had placed these psychic equivalents of migraine in the group to which they really belong, namely the group of delirium, confusion and stupor. The pathology of migraine probably embraces facts both of neuropathy and intoxication. Dr. Dercum believes that there is first an unstable nervous system and, secondly, the cumulative action of a toxin or toxins. The unilateral character of migraine is no objection to the theory of a toxic cause. Toxins do not always produce bilateral symptoms; thus malarial neuralgia usually selects the supraorbital region of one side and again Dr. S. Weir Mitchell years ago, pointed out that in experimental bromid paralysis in dogs, one side always gives way first, the bromid produces first a hemiplegia and then later a generalized paralysis.

DR. ALFRED GORDON, Philadelphia, said that the histories of all migrainic patients leave no doubt that there is an underlying pathologic basis as Dr. Mills pointed out. Migraine is now considered a degenerative neurosis. The majority of migranic cases present a special make up of the nervous system. What he wanted to point out was the psychoses which occur in migrainic attacks and the dependency of the psychoses on the cases of migraine. Taking up Dr. Mitchell's remarks in regard to the poisons, Dr. Gordon said that there is absolutely no proof at the present time that there is a specific poison which produces an attack, but taking into consideration the chemical and physiologic investigations, which are abundant, it is known that all migrainic patients about the time that they develop migrainic paroxysms, present abnormal elements in their feces and urine, as indol, indoxyl, skatol, or other elements normally present in increased or diminshed quantities. Consequently, while it can not be said that a certain given poison will produce an attack of migraine in a certain case, there is abundant proof for logical inference. Dr. Gordon said that while it is not right to say absolutely, in a sweeping manner, that every attack of migraine is an attack of epilepsy, yet whenever an

attack of migraine comes on suddenly, preceded by a sudden, blurring sensation, or a tingling sensation, followed immediately by a severe headache, with complete exhaustion; in these cases, what can be said, but that it is suggestive of epilepsy? That is all he desired to imply. In his paper he wanted to present a view that has arisen in his mind. He had had an opportunity of observing twelve cases of mental disturbance, occurring exclusively about the time of migrainic attacks, and when delirium, stupor or confusion develops, with delusional symptoms, or hallucinations, he asked if it is not the proper logical conclusion that one is dependent on the other, that the psychosis is dependent on the cause of the migrainic attack? These twelve cases give evidence of the fact that the psychosis is dependent on the migrainic attacks, especially when the psychosis didn't continue and didn't occur between the attacks, but only about the time of the attacks. Modern physiologic investigations have shown toxemia to be the cause of the migraine. These mental disturbances come on at about the same time. The psychosis begins when migraine reaches its climax and disappears with the disappearance of the migraine. What else is the cause?

DR. S. WEIR MITCHELL, Philadelphia, said there were two things in Dr. Gordon's interesting paper not alluded to. Some twenty-five years ago or more Dr. Mitchell had showed that although a large number of headaches are caused by ineffective eyes that the peculiar type of head pain in megrim is not caused by eyestrain. Again, it is quite sure that in some persons who are below the general par of health these headaches disappear when they regain their normal condition. He, himself, had personal experience of this when, exhausted by service in army hospitals at the close of the Civil war, he had a succession of attacks of megrim, which he lost after a few months in Switzerland. He has seen a number of cases, notably one which he reported to the College of Physicians, in which these headaches were increased during the months of storm and as he had shown long ago that traumatic neuralgias are almost entirely a product of conditions of the weather, it is a fair subject of inquiry as to how many of the headaches now in question may have a similar parentage. The immediate primary symptoms connected with the eyes are very interesting. In his own case the phosphene lines, so well known, were present and he still has these occasionally with headaches, but as his son, Dr. John Mitchell, has shown, as well as himself, there are remarkable cases in which these phosphenes are replaced by distinct visions of animals or people and sometimes by prolonged visual illusions.

ATROPHIC RHINITIS: A REPROACH TO RHINOLOGY.*

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Of late years atrophic rhinitis seems to have been very much neglected by the writers of the literature of American rhinology, not because of the lack of prevalence of the disease, which is probably as prevalent as ever, but doubtless because of the unsatisfactory results which the average rhinologist obtains.

In looking over the programs of society meetings I find that, relative to the number of cases which probably occur in every man's practice, as a subject for papers it has not been deemed attractive.

The literature touching the tonsil, the turbinate and the accessory sinuses is so voluminous that to consult it in any but a very superficial manner is a great deal of work, whereas I find in looking over the programs of this section for a number of years that only three or four papers have been devoted to this subject. I do not find any reference to it in the published Transactions of the American Laryngological, Rhinological and Otological Society for the past ten years, although there is at present a prize offer of $100 by one of the members for the best essay on the subject, as yet unawarded. The American Laryngological Association in its earlier Transactions, contained a number of papers touching the subject, but of late it has been silent.

Yet atrophic rhinitis is probably as often found in our patients and in our clinics as any other form of nasal disease, is more annoying to its owner and to those with whom he comes in contact than enlarged turbinates, enlarged tonsils or even sinus disease, and is less often treated with satisfactory results than any of those. Why is this? Is the disease inherently incurable or have we failed to give it the attention which it deserves? What is it pathologically and what is its etiology, and is it always going to be as much of a reproach to rhinology as it seems to me it is at present? I take up this subject for the purpose of bringing the subject before you for discussion, in the hope not only of learning something from the experience of this Section, but of stimulating you to a more thorough study of the disease.

DEFINITION.

By the term atrophic rhinitis I understand a chronic inflammation of the mucous membrane of the nasal tract, accompanied by an atrophy which extends to the underlying structures, that is, the basement membrane, and sooner or later involving the bone itself. The term ozena refers to an aggravated condition of the same disease, in which there is a very foul odor accompanying the secretion. A peculiar characteristic of the disease consists in the production of an altered secretion, much thicker than normal, drying quickly, forming crusts difficult of removal, and if it has lasted for any length of time, these crusts are very foul smelling. The circulatory and glandular elements both atrophy, fibroid degeneration occurs, and in the inferior turbinate there may be complete destruction of all the erectile tissues.

ETIOLOGY.

Dr. Goodale[1] has discussed the etiology of atrophic rhinitis and pharyngitis, based on 200 cases. He found that the fetid and non-fetid atrophies are more than twice as common in females as in males, while pure pharyngeal atrophy occurs with nearly equal frequency in both sexes. The fetid and non-fetid atrophies begin between the ages of 5 and 15 for the most part, whereas the pharyngeal form is unusual before 20. In females the condition seemed to be worse during the catamenia. Three-fourths of the cases showed good health and nutrition. From these studies he regarded the process as primarily an atrophic one, and not as a sequel to any hypertrophic process.

As is well-known, Grünwald, of Munich, has persistently advocated the theory that atrophic rhinitis was secondary to suppuration in some one of the accessory cavities, a view which the majority of rhinologists, I think, have not accepted, and which Jonathan Wright (perhaps our foremost nasal pathologist) regards as entirely untenable and having no parallel in pathologic processes in any other part of the body. In my own cases I have not been able to demonstrate that any one of them had its origin in suppuration of an accessory sinus, although I have repeatedly made exploratory punctures in the maxillary sinus in the endeavor to determine this point. As a rule, most accessory sinus

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. Transactions of the Section of Laryngology and Otology, A. M. A., 1897, p. 46, *et seq.*

troubles, even those of long standing, are accompanied by swollen and edematous mucous membranes, and fluid pus, and not by the wide-open, crust-covered nares of atrophic rhinitis.

Bacteriologists have studied the disease with considerable care, and various bacilli have been found, the pneumococcus, the *Bacillus mucosus,* or the bacillus of Abel, the so-called ozena bacillus, and the *Coccobacillus fatidus* of Pertz. It has apparently not been proved in any case that these bacilli are the origin of anything but the odor. Their study, however, has given us considerable information with reference to the treatment, or rather the unfavorable results of treatment of the disease, since these bacilli are all capsulated bacilli and resist all antiseptic fluids in doses which would be borne by any organism, even formalin being bactericidal only in strength insupportable by any mucous membrane, namely, 66 drops to 1,000 of water.

In an elaborate article on its bacteriology and histology, Cozzolini[2] divides it into three stages, the first, or slightly advanced; the second, or advanced period; and the third, or very advanced stage. In the first two stages the bone becomes thin and sensibly eroded by the process of resorption, while the mucous membrane is but slightly changed. In the third stage the whole osseous structure almost completely disappears. His studies in the pathology and histology of the disease show first dilated glands and their gradual filling up with proliferated epithelial glandular cells, the venous sinuses becoming obstructed, then partly filled with proliferating endothelium, then the formation of osteoblasts, then of a thickened periosteum, and accompanied with a change in the character of the cells of the surface mucous membrane which become more squamous celled.

As a result of his researches he came to the belief that the process of ozena had its beginning in the bone, that is, that every case of ozena is the result of a case of individual predisposition, and with an absence of a favorable substratum, the process beginning as an atrophy of the medullary blood vessels, and especially of the arterial capillaries of the periosteal zone, then becoming a periosteitis or a rarefying osteitis. He regarded the micro-organisms as a secondary and not a primary event in the etiology, the bacillus not being found on the outer surface of the crusts, where are the common saprophytes, but only on the inner surface next its point of attachment to the nasal mucous membrane, and in the submucosa after detachment of the crusts. This theory seems to me the most reasonable of all which have been advanced.

E. Döbelle[3] gives the results of a careful clinical and microscopic study of a large number of cases. He carefully cleansed the nostrils, then made bacteriological examinations of the secretions from hour to hour as they re-formed, and also from the surface of the cleaned mucous membrane. He found the leucocytes to form quicker and in greater masses than in normal mucous membrane, but did not find a support for any special theory. The Löwenberg bacillus theory was neither proved nor disproved by his researches. He watched the re-formation of the crusts, but did not find that the crusts re-formed first in the natural drainage place from the antrum and frontal sinus, but on the convexities of the turbinates, and did not find anything to support the Grünwaldschen theory.

2. Annals of Otology, Rhinology and Laryngology, July, 1899.
3. "Origin of Secretion in Ozena," Arch. f. Laryng., xv, pp. 142 to 158.

The theories which have been offered that atrophic rhinitis had its origin in variations of form and development of the skull seem to me also untenable, since the disease is found in narrow noses and in wide noses, with perhaps equal frequency, and is certainly an absolute perquisite of no one class in society, as it can be found among the so-called higher classes as well as the lower, though perhaps more often among those who live in more or less unhygienic conditions. Yet, from a practical standpoint, I have found some of the most intractable cases among those who were subject to it by neither heredity nor manner of living.

In an article published in 1903, Freudenthal offered the theory that the disease was due to a deficiency in the humidity of the air we breathe, and stated as a result of his own large experience that with reference to the Grünwald theory he had never found any cases secondary to accessory sinus disease, but did not deny that the two might occur as a coincidence. As a result of deficient humidity he thinks the secretion becomes thickened, less easily removed in a normal way, becomes attached to the mucous membrane, clogs the gland opening, and the process then goes on with a deficiency of humidity the primary cause, the odor being due to the secretion from a portion of the crust lying directly in contact with the mucous membrane. As opposed to that theory, it has in no wise been proven that dwellers in dry climates are any more subject to atrophic rhinitis than those in moist ones. It is very prevalent in New England, which would be classed as a moist climate. I find it prevalent among workers in cotton mills, where a fixed humidity is one of the requisites for properly working the yarn, and where the only time when the individual would be in contact with a relatively dry atmosphere would be during the night. As people of that class are inclined to sleep in ill-ventilated, over-dry rooms, it is possible, of course, that for one-half of each day they may breathe an exceptionally dry atmosphere, especially in the winter months. This theory, however, seems hardly sufficient to properly explain the disease.

Some years ago Bosworth gave as his explanation of the origin that it was subsequent to the purulent rhinitis of children. From my own observations I should say that in most instances the purulent rhinitis of children was subsequent to adenoids and did not stand in any special causative relation to atrophic rhinitis.

The etiology then would seem to be an undetermined one, and a subject for further study. In some persons there seems to be a certain predisposition, at times apparently hereditary, at times not, and the phenomena of the disease seem to be due to some unknown, as yet, predisposition. It is found among all social classes—it is very prevalent, as workers in dispensaries very well know, and I am also sure that the average rhinologist, if he counts up his cases, finds that he has large numbers of atrophic cases among his private patients as well. It is intensely annoying, especially if it has reached the ozena stage where the odor, which is seldom recognized by the patient, but is quickly recognized by others, is one of the phenomena of the disease. I know of nothing more annoying in the field of nasal pathology than for a well-bred society young woman to be afflicted with atrophic rhinitis of the odor type, and to be unable to know at all times whether there is or is not odor present. I have had a number of such patients. They are discouraging to me and discouraging to themselves. They are, as a rule, faithful to every method of treatment which you try, and yet withal the treatment is most unsatisfactory both to the physician and to the

patient. After 12 years' experience with this disease I do not find that my results are materially better than at the beginning, being limited practically to cleanliness and some form of nasal stimulation in the endeavor to make the atrophic glands do more and better work.

TREATMENT.

When one turns to the special therapeutic measures which are in use, they are found to consist in the main of thorough cleaning of the nasal passages from the attached crusts, and the local application for the most part of some form of stimulating applications. Cozzolini preferred curetting on the ground that the new stimulated tissue which might form would be less annoying than the old mucous membrane. When the pseudodiphtheria bacillus or the pneumobacillus of Friedlander was thought to be the cause, many observers began using antitoxin, and with alleged good results. These good results were probably, however, entirely due to the fact that the antitoxins increased the glandular activity, thereby lessening the fetor, and had the drawback that so far as any real cure was concerned, they were useless, very expensive, the dosage being enormously large, and probably harmful, and I think that method of treatment has fallen into disuse.

In the years 1886, 1887 and 1888 there was considerable discussion in the American Laryngological Association with reference to the use of four or five milliamperes of the negative galvanic current applied for five to fifteen minutes directly to the nasal mucous membrane by means of a copper wire and cotton saturated with normal salt solution, and many observers, such as Delavan, Hartman and others, reported cases as greatly benefited or cured. Time, however, has not proven the value of this remedy, and in a private letter just received from Dr. Hartman he states that he gave up the use of the galvanic current some years ago. Whereas, the results in the first instance seemed to be encouraging, in the long run he found it no better than other methods resorted to, most of which, he says, have been disappointing.

In the discussion[4] on the treatment before the American Laryngological Association, Rice thinks as good results are obtained by endeavoring to improve the hygienic conditions as from any other particular thing, and advocates the use of local stimulants and bactericides. He mentions a long list of local applications, such as bichlorid of mercury 1-4000 or 1-2000, diphtheria antitoxin, galvanism, the Gottstein tampon,[5] iodoform, iodol, aristol (thymol iodid), salicylic acid, camphor, iodin, perchlorid of iron, tannin, alum, rhatany, opium, medicated bougies, stimulating volatile substances, essential oils, cubebs, tar, eucalyptus, thymol, auto-insufflators for carbolic acid, menthol, oil of pine, 20 per cent. pyoktannin in wool fat, electin vibration, borax in glycerin, chlorid of ammonium in glycerin, chlorid of potassium and phosphate sodium, ammonium phosphate, honey and terebene, creosote ointment, cubeb cigarettes, creolin bougies, resorcinol 0.5 per cent. in vaselin, have all had their advocates. Destructive agents, such as the galvanocautery, were used at one time, and I mention them here only as a matter of history, as I presume no one uses anything of the kind at present. Hydrogen peroxid and preparations containing it, seem useful as cleansing agents, but in the long run they leave the mucous membrane as dry as ever. Oily substances, as menstrua for other things, have been very much used, but so far as these are concerned, although they have their advocates, I feel with Dr. T. R. French that in the treatment of these conditions they are to be avoided, as the oils have no therapeutic value in the nasal mucous membrane, tend to block the orifices of the glands, and although for the time being they contribute to the comfort of the patient, are in reality of very little use. Some years ago I first brought the use of formalin to the attention of the profession as a remedy in the treatment of atrophic rhinitis as a deodorant and stimulant, and at first got good results, but have now discontinued its use for several years as it was very annoying to the patient, and although productive of some influence in regard to the fetor, did not seem to materially influence the progress of the disease.

Somers has advocated citric acid as a deodorant, but states that it is of no value otherwise; Ingals reported in 1897 that a quarter of 1 per cent. of yellow oxid of mercury is a good remedy; J. H. Nichols reported 10 per cent. orthochlorphenol; John O. Roe advocated a mild solution of nitrate of silver. I have used nearly all of the proprietary silver salts. Dr. Leland[6] advocated the use of 10 to 20 per cent. cocain on cotton for 20 minutes, then 1-5000-2000 corrosive for the same length of time to get general congestion. I have no doubt, however, that he has long since abandoned this. Hubbard used cotton tampons put in alcoholic solution of acetanilid. Porcher advocated the use of potassium iodin on cotton tampons. This preparation, known as Lugol's iodin, I used for many years, and still use more or less, and find it one of the most efficient measures. I have used ichthyol in its many combinations, with and without glycerin, and have found this one of the many valuable methods of local application. When all is said and done, the local therapeutics seems to reduce itself to a thorough cleansing of the nasal mucous membrane, and the use of any application which produces a mild stimulation is probably as effective as anything. The severer remedies do not seem to have any material advantage over the milder ones. I am afraid that we have no specific, but I hope that one may yet be found, and that the future will not, as in the past, seem to show more failures than successes.

A word as to my experience with reference to cures. While pessimistic as a whole, I invariably tell individual patients that they will be improved, which is true, and that with careful treatment by themselves, they may be able to keep the nose free from crusts and have a reasonable degree of comfort with it. In a few instances in young people, in whom I have been able to control the treatment for a sufficient length of time, it has seemed to me that I have produced an absolute cure. In one case in particular, a girl of 14 to 16 years of age, whom I had under observation for several years, there was apparently a perfect cure, and the last time I saw her, some four years after the beginning of the treatment, and two and one-half years after entire cessation, the nose seemed apparently a normal one. I have, however, had other cases under observation the same length of time in which the conditions were fairly well controllable but the present state of affairs is, or would be if the treatment were omitted for any length of time, practically unchanged from the beginning. I have not per-

4. Transactions, 1897, p. 102.

5. A wad of cotton or wool to pack the nasal cavities and then remove after a certain length of time, so as to render the cavity less dry and stimulate secretion. It may have some value as an aid in the removal of secretion, but as a therapeutic agent is practically worthless, as it can not be introduced and removed by the patient alone, and seems to have no permanent therapeutic value.

6. Transactions of the American Laryngological Association.

sonally made any bacteriologic studies, but have accepted the results of others on that score.

I end as I began with the statement that atrophic rhinitis is the most discouraging chapter in rhinology. I have brought nothing new, the facts which I have presented are known to all, yet as human knowledge represents the sum of our individual experience, I can not but feel that the discussion of this subject is always timely. Every physician has had large experience with this disease, and I hope the discussion will bring out suggestions of value.

DISCUSSION.

DR. W. E. CASSELBERRY, Chicago, said that the question of climate in dry or atrophic rhinitis is a practical one. The deduction that because of comparative atmospheric dryness a climate is necessarily inimical to atrophic rhinitis is scarcely warranted. For years Dr. Casselberry had under treatment an intelligent dentist who suffered severely from this disease in its characteristic form. For a long time Dr. Casselberry discouraged him from moving to Denver from Chicago because of the natural assumption that the dry climate would not benefit the atrophic rhinitis. The man did go to Denver, however, for business reasons and still lives there. During the first two years of his residence there he wrote Dr. Casselberry twice that his disease had been vastly improved by the change of climate. Dr. Casselberry thinks that benefit may be anticipated independently of the single climatic factor of relative humidity by a mere change of environment, whether from a dry to a moist or from a moist to a dry climate, by stimulating the general health of the individual, and thus indirectly ameliorating the discomforts of this disease.

DR. G. P. POND, San Francisco, thinks that attention should be called to the probability of syphilis, inherited or acquired, in nearly all these cases. He also thinks that there never was a case of ozena without trouble in one or more of the accessory sinuses, usually the sphenoidal; and that the only hope of relief is in radical operative interference, such as will give clear healthy sinuses.

DR. R. C. MYLES, New York City, has been making observations on atrophic rhinitis for fifteen years, and would like to ascertain whether in the past others have found the same conditions that he has. Every case of atrophic rhinitis which he has been able to collect was essentially a child's disease. Every patient with atrophic rhinitis had pus in the nose 365 days in the year, and usually dating back to the eighth year of age or even before. He found that these patients did not have atrophy of the bone so much as of the mucosa. The bone condition seems to be a case of arrested development. The mucosa becomes atrophied; bathed in the mucoid substance night and day, year in and year out, it loses its vitality. The accessory sinuses are more or less involved. The condition after puberty is something that is inherited from childlife. If the source of the pus could be found and the sinus tapped, these patients might often be relieved. After thirty years they seem naturally improved. In cases of atrophy in which the affection begins at from 10 to 12 years of age, there is a mixed atrophy, and the germ, or whatever the infection is, is then not so serious. Dr. Myles has seen children from 3 to 8 years old, healthy looking, with the decided atrophied condition, the mother at the same time presenting similar conditions; whether the condition was inherited or contagious he could not say.

DR. CULLEN F. WELTY, San Francisco, believes that atrophy of the nose is due to empyema of the accessory sinuses in about 50 per cent. of the cases. He has cured patients by getting rid of the pus. In some of the cases he has not eliminated the pus entirely and the patients are not cured. When it has entirely disappeared the characteristic crust formation seems to disappear with it. He has also had benefit from the paraffin injections when not accompanied by crust formations, but he has seen paraffin do harm when there was a crust formation. The caliber of the nasal chamber is made smaller and the crusts are much harder to eliminate entirely. Dr. Welty also believes that hypertrophy precedes the atrophy in cases that are not due to empyema, and that it is simply a part of the same disease. In many instances hypertrophied tissue and atrophic tissue may be demonstrated in the same turbinate. It has been clearly demonstrated that some cases of atrophy are due to the ozena coccus. He also believes that some cases of atrophy are due to hereditary taints and malformation. Treatment should be surgical; cleansing applications should also be used.

DR. F. S. SNOW, Syracuse, N. Y., said that he had hoped to hear something on the etiology of this disease. About 75 per cent. of his patients will tolerate large doses of iodid of potash. He does not dare to say that all his cases of atrophic rhinitis are of a specific character, but iodid of potash helps to get good results. His observation coincides with that of Dr. Myles, that these cases largely occur in children. He believes that a great deal hinges on thorough cleansing. In his practice he uses a 40 gr. to the ounce solution of nitrate of silver applied to the spots that are rough and ulcerated. Making this application twice a week, and having the patient keep the nose very clean with an alkaline solution, gives satisfactory results.

DR. A. H. ANDREWS, Chicago, in regard to inherited syphilis as an etiologic factor, said that he knows of one family one member of which has atrophic rhinitis; none of the others has it. It is hardly likely that one member of a family would inherit syphilis without some of the others inheriting it also. With regard to humidity, the members of this family have all lived in rooms with the same surroundings. One has atrophic rhinitis, none of the rest has it, so it is not a question of humidity alone nor the great changes to which people are subjected. He is inclined to agree with Dr. Myles that in all these cases in which the history can be traced it will be found that in early life the patients have suffered from occlusion of the nasal cavities.

DR. C. H. COBB, Boston, said that several years ago he presented a paper on "The Treatment of Atrophic Rhinitis by Electrolysis." It seemed to him then that it was easier to control the odor in a case of ozena, by electrolysis, than in any other way, and he thinks so still. He was criticised somewhat in giving details. These were simply experiments which tend to prove that copper had no influence in the treatment, and the steel needle or platinum needle would do as much good. The steel needle is easily corroded and is not practicable. The copper needle is easy to make; a piece of copper wire can be filed down to a point. It is necessary to have an emery cloth to polish the needle whenever it is used, as it gets chlorid of copper on it. A platinum needle has as much influence, is easy to use and does not corrode. The probable reason that this does some good is that it liberates nascent oxygen or, rather, oxygen in a subdivided state in the tissues themselves, and that oxygen with its tendency to unite with the tissues does unite with those offering the least resistance. It is used in the arts and science to purify glycerin so that nitroglycerin may be made with little risk. The thorough cleansing should be done in such a way as to increase the exosmosis. The tissue of the atrophic nose is apparently not permeable to water; water does not exude through it. It secretes mucus but not water. The best of all things is common salt and the sulphate of soda and sulphate of potash, which dissolve the mucus. Bichlorid of mercury, peroxid of hydrogen, alcohol and boracic acid to a limited extent are precipitants. They can not be washed off with water before they precipitate the mucus into a sticky mass.

DR. J. L. GOODALE, Boston, said that he does not feel that since the paper he read ten years ago, much has been learned with regard to the etiology and the nature of atrophic rhinitis. The condition which is seen in the nose characterized by atrophy of the membrane in association with crusts more or less fetid is a condition arising from a variety of causes. He thinks the matter is too large and too interesting to be discussed in five minutes.

DR. D. J. MCDONALD, New York City, said that in the New York Polyclinic a number of these cases are classified as the Russian disease. Many patients from the lower East Side are poor and deprived of the ordinary conditions of life in regard to hygiene. He thinks that humidity has very little to do with

this disease. In most of the cases the history shows pus in the nose. A number of men who have been in Vienna have told him that over there it is called the Vienna disease.

DR. OTTO FREER, Chicago, said that his experience in the treatment of atrophic rhinitis has been satisfactory to him rather than discouraging. He thinks that the undue prominence given in the last decade to the etiologic importance of chronic sinus suppuration in ozena has discouraged symptomatic treatment and has led to a pessimistic view of the affection which he does not share. Although there are doubtless cases in which most of the discharge comes from the accessory sinuses and in which it is necessary to open these sinuses to help the patient, these instances, in his experience, are exceptional, and he regards atrophic rhinitis, as a rule, as representing merely a chronic suppurative catarrh confined mainly to the mucous lining of the nasal fossæ at their meatuses, with consequent atrophy of the turbinated bodies of varying degree, according to the intensity and duration of the process. The change in the disease from the normal ciliated mucosa of the nasal passages to a cutis-like nasal lining resembling the integument has suggested to Dr. Freer the ointment feature of his treatment, the scabbing and crusting on the cutaneously changed mucosa resembling much similar conditions in chronic scaly eczema of the skin. The mucous membrane of the nose and nasopharynx in atrophic rhinitis is really half skin and half mucosa in its histologic makeup.

Dr. Freer explained his treatment of the average case of atrophic rhinitis (ozena) as follows: The most important thing for the control of the disease is complete and persistent cleansing of the nares of secretions. The hard, adherent crusts and scabs can not be washed away until they are softened, and to accomplish this the most useful appliance is the Gottstein plug. The patient is directed to make it of absorbent cotton by rotating the end of an applicator or wooden toothpick on its axis with the fingers of the right hand in a pledget of the cotton held between the thumb and index finger of the left one until an even cylinder of cotton about three inches long is formed. This cotton plug is gently screwed into the nostril as far as it will go and is then wet with a saturated solution of boric acid, which soaks into it when it is in place. The nostrils are thus alternately closed with the Gottstein plug until the next day, when the patient makes his second visit. On inspection at this time the nasal fossæ will usually be found free from dried secretion, the crusts having softened to mucopurulent masses. Dr. Freer then clears the nares of these with his hard rubber nasal irrigating tube, which is sold under his name, already manufactured, but may be readily made from a hard rubber Eustachian catheter by straightening it by heat, closing the distal end with sealing-wax and melting two or three minute holes through its wall with a fine, hot sewing needle. The tube is then connected to a white rubber bulb syringe or Politzer bag and the irrigator is complete. The irrigating tube is passed back and forth in the nares and nasopharynx and rotated while the washing fluid, under pressure from the syringe, escapes in three minute but forcible jets which cleanse the nares and pharynx of secretions. The fluid employed is a solution of sodium bicarbonate, one teaspoonful to a glass of water. The patient readily learns to use the tube himself, and it is part of the treatment for him to wash out his nose and nasopharynx with it as often as needed. The advantage of the tube over the nasal douche is that it cleanses the vault of the nasal fossæ and pharynx and that the little jets have undermining force enough to float off adherent masses of secretion, while not enough water is used to endanger the middle ear.

After cleansing the nares and nasopharynx in this manner these parts are massaged under illumination with the head mirror by means of a frequently changed cotton swab on a light flexible wire nasal applicator, the swab being dipped in a freshly prepared paste of argyrol dissolved with a few drops of water in a little dish. The solution must be fresh. As much as possible the swab must be passed into the olfactory fissure and under the turbinated bodies so that every cranny of the nasal fossæ is reached. The nasopharynx is also massaged through the nose in the same way. The patient is directed to return at first every second day and then at increasing intervals, according to the effect of the treatment. He is instructed to irrigate the nasal fossæ at first twice a day, then less and less often as he improves, and he is directed to introduce an ointment twice a day into the nares by means of a Gottstein plug, the ointment consisting of pure lanolin, one ounce to 10 grains of salicylic acid. This ointment prevents adhesion of crusts and stays in contact with mucosa much longer than do the thinner oils. The most difficult time for successful treatment is in winter, when the dry air of artificially heated rooms makes the tendency to drying of secretions especially great. At this time the patient is directed to place a tub on the floor of his room and to fill it with water. A number of towels or sheets are then hung into the water in such a manner that the moisture ascends in them and creates a large evaporating surface. In this way the air of the room is kept moist at all times, while dishes on stoves or radiators are only effective when these appliances are hot. The laryngotracheitis sicca and tracheal ozena often accompanying atrophic rhinitis Dr. Freer treats with his long intratracheal spray tubes introduced below the cords after cocainization of the larynx. The solutions employed here are nitrate of silver, from 15 to 30 grains to the ounce of distilled water, and potassium permanganate, from 1 to 8 grains to the ounce of water. Dr. Freer has found the treatment outlined above most efficient for both the nasal ozena and the tracheal and laryngeal extensions.

DR. G. L. RICHARDS, Fall River, Mass., said that as a routine measure he uses iodid of potassium. It has not seemed to him that syphilis is a factor in this disease. In reference to children, he thinks the majority of cases begin in children, but whether the disease starts in the accessory sinuses in children seems to him doubtful. He has washed out the antrum, but so far without special influence on the disease. Men who work in pathologic laboratories should study this matter, he said. Here is a particular problem unsolved to the satisfaction of the profession, and there ought to be a paper on it every year. Dr. Richards has used the Gottstein tampon a great deal, but the crusts form just the same. Perhaps the advantage Dr. Freer gets is in the Gottstein tampon.

Clinical Notes

USE OF SUPRARENAL EXTRACT TO FACILITATE CATHETERIZATION IN PATIENTS WITH HYPERTROPHIED PROSTATE.

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Although not engaged in general practice, it has fallen to my lot to use adrenalin three times with the most gratifying result in cases of retention of urine associated with prostatic enlargement.

In commenting on my experience, I have come to believe that the knowledge of this use of the remedy is not general. This is my excuse for offering the following brief notes, which are intended simply to call attention to the matter:

CASE 1.—The patient was an old man who had been operated on. I was called up in the night by the nurse, who had failed to relieve the distress occasioned by retention of urine. I found the patient in agony, and my efforts were not more successful than those of the nurse.

Formerly, I had frequently resorted to suprapubic aspiration, and I had almost made up my mind that this would be the wisest course in this instance, when I thought of trying adrenalin.

I prepared a solution by adding a small quantity of 0.1 per cent. solution of adrenalin to an equal amount of 4 per cent. cocain solution. With this I filled an ordinary pipette, and injected it into the catheter, allowing it to gravitate to the tip. I then inserted the end of the pipette into the upper end of the catheter, closing it and thus preventing the solution from

escaping. The catheter was then introduced as far as possible without discomfort, and the solution injected from the catheter by pressing on the bulb of the pipette. After waiting a short time the catheter passed into the bladder, to the great relief of the sufferer.

CASE 2.—Three years later I made a social call on an old medical friend whom I found in great distress. He had not been able to evacuate the bladder for three days, and it was distended to the umbilicus. The attending physician had made repeated efforts to use the catheter, but the pain it occasioned and the failure of results had made the old doctor rebel against further effort. After explaining my previous experience to him, he consented to allow me to try.

The procedure as related above was carried out, with the identical result. The patient passed a large quantity of urine, and was able to use an ordinary soft catheter thereafter himself. However, he never recovered, but died within a month. I am convinced that his last days were made comfortable by my accidental call.

CASE 3.—In September, 1905, I operated on an old man, and at 11:30 p. m. he began to complain of his bladder. The assistant surgeon was called and used hot applications and catheter, but failed to start the urine. The distress increased, and at 4 a. m. I was called by telephone, and suggested that adnephrin and cocain be used. At 5 a. m. I was called again as the attempt to relieve the patient had failed. On arriving at the hospital I found that an effort had been made to introduce the fluid after the catheter was introduced. A long column of air prevented the admission of the astringent to the parts. I prepared a fresh solution, and within ten minutes the patient was relieved and was resting comfortably. He had no more trouble, and made a good recovery.

WRIGHT'S "THROTTLED CAPILLARY" ADAPTED TO THE CONTROL OF BLOOD-COUNTING PIPETTES.*

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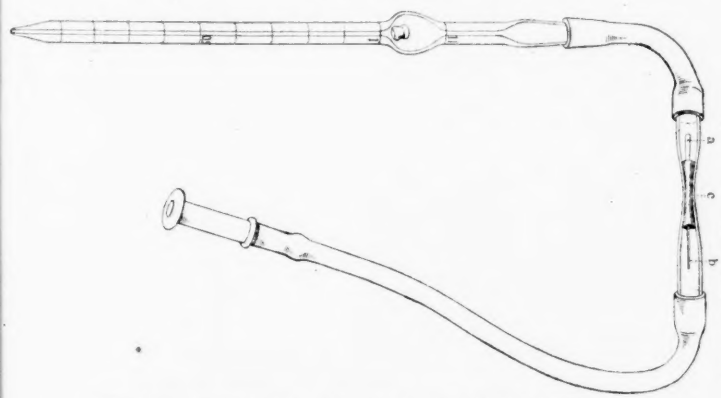

Having repeatedly observed the difficulty many students and physicians experience in acquiring an accurate technic with the coarse capillary pipettes such as are in constant use for leucocyte counting and hemoglobin estimation, it occurred to me that Wright's "throttled capillary" might be adapted to the control of these instruments.

After some experiments, the device illustrated in the accompanying drawing was found to give very satisfactory results.

Description.—It consists of a capillary tube "throttled" in the manner described by Wright, that is, heated in a very small flame and then quickly drawn out into a fine thread. The caliber of this tip must be so fine that when gentle suction is made the air comes through very slowly.

The outer protecting tube is from 5 to 7 mm. in diameter and drawn out to an hour-glass shape. The large part of the capillary (a) is marked with a file so that it may be conveniently broken off after cementing in the holder. This latter is easily accomplished by molding a little sealing wax near the throttled end, passing the larger free end of the capillary first through the holder, and, after warming gently at the constricted part, drawing the waxed end down into the narrow waist of the tube. The wax softens and fills the constriction (c), and on cooling leaves the capillary firmly cemented in place. The ends should be about 5 mm. short of the open ends of the container. It is easy to break off this larger end of the capillary at the point marked, by using a fine forceps passed into the larger tube.

With a little patience any one can make the apparatus. A few trials may be necessary in order to determine the fineness of the "throttle." This should be so arranged that, with gentle suction, the filling of the pipette is slow, while with stronger pressure one may rapidly draw in the mixing fluid.

The device should be connected to the pipette with the fine point (b) toward the mouth end as indicated in the drawing.

In the subsequent washing of the pipette with water, alcohol and ether it is advisable to remove the controlling device, as a drop of fluid drawn into the "throttled" end will occlude it and render it useless.

With this controller it is easy to draw the column of blood steadily and slowly to the point desired, and it also keeps the blood from falling from the pipette in transferring the tip to the bottle of diluting fluid.

The controller is found to give very satisfactory results in the hands of beginners using leucocyte counters and hemoglobinometer pipettes. It may also be used with a large rubber teat instead of the mouth piece and suction tube. In this event, the teat must have a small round hole punched in its upper end so that the negative pressure may be instantly relieved by the admission of air. The teat, however, does not give, in my hands, as satisfactory results as the ordinary suction tube.

* From the Clinical Laboratory of Johns Hopkins Hospital and University.

DIGITALIS HEART BLOCK.

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The digitalis arrhythmias have been so thoroughly described by Mackenzie[1] that it would seem hardly possible to add to his description. Yet the subject is one of considerable interest, and, since the case here reported presented some peculiarities, I shall briefly relate the patient's history and the observations made on him.

Patient.—J. E., laborer, aged 44, was admitted to the wards of Dr. J. O. Hirschfelder at the City and County Hospital, San Francisco, on April 17, complaining of pain in the left side, the back, and the legs. Family history was negative.

History.—The man has had typhoid fever, pneumonia and malaria; he has used alcohol to excess and tobacco moderately. He has never had acute articular rheumatism, and denies venereal disease. For some time he has been short of breath on the least exertion and has had slight cough and expectoration. One year ago his chest was tapped for a pleuritic effusion. Appetite and digestion are poor. He has frequent vomiting spells, especially in the morning, and often has pain in the region of the stomach. He has vomited small amounts of blood at times and has had tarry stools.

Examination.—Physical examination showed a well-nourished and fairly well-developed man with signs of pleuritic adhesions at the base of the left lung, and a few râles at the

1. Mackenzie, J.: "New Methods of Studying the Heart," Brit. Med. Jour., 1905, pp. 519, 587, 702, 759, 812; Deut. med. Wochschr., 1904, p. 875.

right apex. The point of maximum cardiac impulse was visible in the fifth intercostal space in the mammary line, 10 cm. from the median line. The area of cardiac dulness extended from the lower border of the third rib above, to 11 cm. to the left and 3 cm. to the right of the median line. A systolic murmur was faintly heard at the apex, but was much louder over the aortic area. The second pulmonic sound was accentuated. Heart rate was 96 a minute and regular. The radial arteries were moderately thickened. Liver was palpable 2 cm. below the costal margin. The spleen was large, hard and smooth and palpable 5 cm. below costal margin.

Urine: Acid, sp. gr. 1.019, no albumin, no sugar, few granular casts.

Clinical Diagnosis.—Left-sided pleuritic adhesions, chronic alcoholism, cirrhosis of the liver, arteriosclerosis.

History in Hospital.—While in bed the pulse rate varied between 82 and 90 a minute. On account of his dyspnea, he began on May 8 to take normal solution of digitalis (P., D. & Co.) (15 drops three times a day). His pulse rate was not affected by this until May 18, when it fell rather suddenly to from 46 to 60 a minute, at the same time becoming irregular. The digitalis was stopped on this date and four days later the pulse became normal again. This same experience was repeated on two subsequent occasions; i. e., the use of digitalis was followed by a slow and irregular pulse. This irregularity consisted in a dropping of beats. Auscultation showed that this dropping was not due to the occurrence of extrasystoles but that during the period of intermission there was either absolute silence over the heart or at most only a faint and indefinite soft sound over the base (auricular contraction?). The patient complained of precordial distress during the irregular heart action.

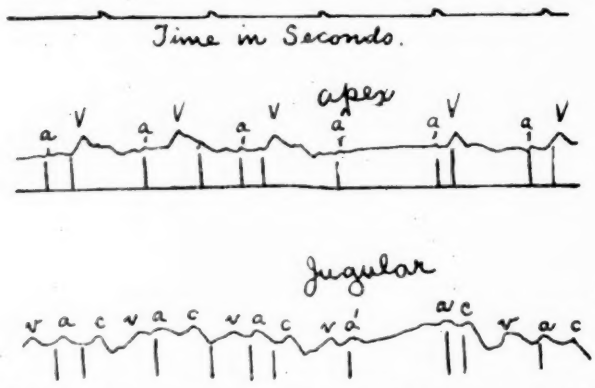

Fig. 1.—*V*, elevations produced by contractions of ventricles; *a*, smaller elevations produced by contractions of auricles. Lower tracing is from veins of neck.

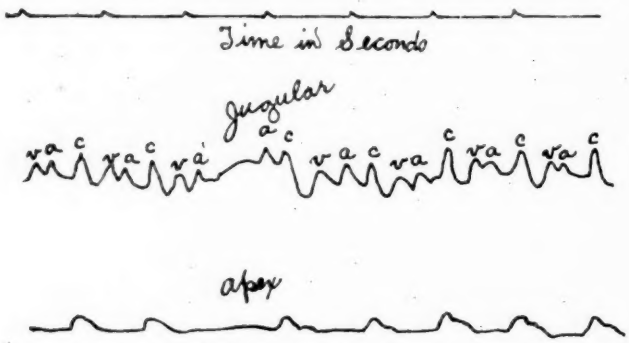

Fig. 2.—Tracings from jugular vein and from apex.

CHARACTER OF PULSE.

Simultaneous tracings taken from the veins of the neck and from the apical region showed that the irregularity present could be divided into two forms. The first of these was due to a blocking of the cardiac contraction wave on its passage from the auricles to the ventricles. The upper tracing on Figure 1 shows a series of larger elevations, *V*, produced by the contractions of the ventricles and a series of smaller elevations, *a*, produced by the contractions of the auricles. The lower tracing, from the veins of the neck, shows three principal elevations: *c* the transmitted carotid pulse, *a* a wave due to the contraction of the auricle, and *v* a wave that depends in some manner on the contraction of the ventricle. The distance from the beginning of *a* to to the beginning of *c* has been termed the *a-c* interval. Assuming that the carotid and jugular pulses take approximately equal periods of time in traveling from the heart to the neck, then the *a-c* interval represents the time taken by (1) the auricular systole, (2) the passage of the contraction wave from the auricles to the ventricles, and (3) that portion of the ventricular contraction which occurs before the opening of the semi-lunar valves (period of tension). Of these factors the second seems to be the most variable and consequently the duration of the *a-c* period has been used to estimate the time taken in the passage of the cardiac impulse from the auricles to the ventricles. According to Mackenzie, this period normally does not exceed 0.2 seconds. In this patient, when not under the influence of digitalis, the duration varied from 0.20 to 0.25 seconds, i. e., there was in him a very slight retardation in the passage of the cardiac impulse from the auricles to the ventricles. When he took digitalis, the conductivity of the auriculoventricular fibers was still further diminished, the *a-c* period varying from 0.25 to 0.40 seconds. This injury to the conductivity then became such that certain waves failed entirely to cross the auriculoventricular junction; *a'* is such a wave (Figs. 1 and 2). We see from the jugular tracings that it is followed by no carotid pulse and from the apex tracings that this is due to an absence of the ventricular systole. The auricles contract as usual, but the contraction wave does not reach the ventricles. It is blocked at the auriculoventricular junction. The conducting fibers are not even called into activity apparently, for the next auricular wave that reaches them regularly crosses with unwonted rapidity. Thus, in Figure 2, the *a-c* period before the intermission is 0.33 to 0.37 seconds and immediately after the intermission it is 0.26 seconds. This shortening of the *a-c* period after the intermission produces a characteristic change in the rhythm of the ventricles, causing the intermission there to be less than twice the interval of a normal beat and the first normal beats succeeding to be correspondingly lengthened. These relations are made clear by referring to Figure 3, which has been constructed according to the plan devised by Wenckebach and Mackenzie. The vertical lines above represent the auricular contractions; those below, the ventricular contractions, and the connecting oblique lines, the transmission of impulses across the auriculoventricular junction. The duration of this transmission (*a-c*) is represented by the obliquity of the line. A glance at this diagram makes clear the relative shortening of the ventricular intermission and the relative lengthening of the subsequent beat or beats.

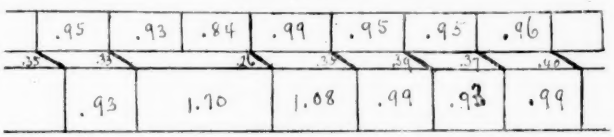

Fig. 3.—Diagrammatic representation of Fig. 2. The lower verticals represent the ventricular systoles, the upper the auricular systoles, and the oblique lines the duration of the *a-c* periods. Notice that these latter cause the ventricular intermission to be relatively shortened and the first subsequent ventricular period to be relatively lengthened.

Similar observations on the block action of digitalis have been made by Mackenzie,[1] by Riehl[2] and by Joachim.[3] Mackenzie states that digitalis will produce this block between auricles and ventricles only when the conduction of impulses across the auriculoventricular fibers is already impaired. If the *a-c* period is 0.2 seconds or less, then digitalis had no blocking effect. If the *a-c* period exceeds 0.2 seconds, then digitalis should be used carefully, for a block at the auriculoventricular junction is liable to occur. If this view proves to be correct, it is a matter of considerable practical importance, for we shall be able to segregate a certain class of cardiac patients who may be presupposed to take digitalis badly. The digitalis block frequently, as in the case here reported, causes distressing cardiac symptoms and impairs the capabilities of the heart.

This peculiar block effect of digitalis is believed by Hering[4] to be due to a stimulation of the vagus nerve. Since atropin paralyses the vagus terminations in the heart, I have tested the effects of this drug on the *a-c* interval in three patients. A fiftieth of a grain of atropin was twice given hypodermically to the patient whose history has just been reported—once when he was under the influence of digitalis and once when he was not. In both cases, the effect was practically identical. The pulse rate was slightly accelerated. One would suppose that this acceleration, by lessening the period of rest for the already impaired aurculoventricular fibers would lead to a lengthening of the *a-c* period. Such was not the case, however, as the accompanying chart shows.

In these observations, the time was marked off by a tuning fork that was vibrating hundredths of a second.

	Before Atropin.	Before Atropin.	30 Min. After.	35 Min. After.
Average length of the *a-c* period	0.23	0.23	0.17	0.17
Average length of the total pulse period	0.75	0.69	0.59	0.62

Atropin was also given to two other patients who showed well-marked auricular pulses. In one of these, a neurasthenic with subacid gastritis, the effect was similar to that just described, the average length of the total systole being shortened from 0.79 to 0.60 seconds and the average length of the *a-c* period being shortened from 0.17 to 0.14 seconds. In the third patient, a convalescent typhoid, a contrary effect was produced, the duration of the total beat being decidedly shortened (from 0.87 to 0.65), whereas the duration of the *a-c*

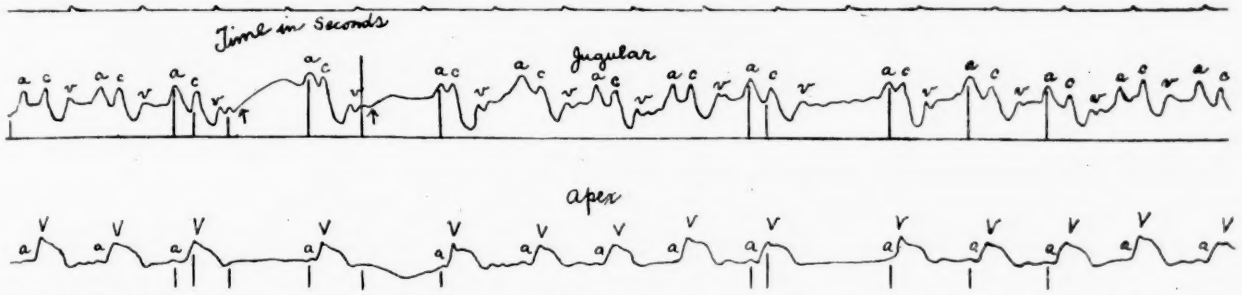

Fig. 4.—The intermissions in this tracing show an absence of auricular contractions. The location of the apices of such contractions if they had been present is indicated by arrows.

interval was slightly lengthened (from 0.20 to 0.25). The question of the effect of atropin on the transmission of impulses across the auriculoventricular bundle may prove of some practical importance, for by its use we may be able to correct the slighter irregularities that arise from a vagus block at the auriculoventricular junction. I regret that I was unable to test the combination of atropin and digitalis on my patient.

Earlier in the paper it was stated that at least two forms of arrhythmia were produced by the use of digitalis on my patient. The second form bore a superficial resemblance to the first, for here also a beat was apparently dropped out, leaving a long intermission. This form differed from the first, however, in the important fact that no auricular pulsation occurred during the

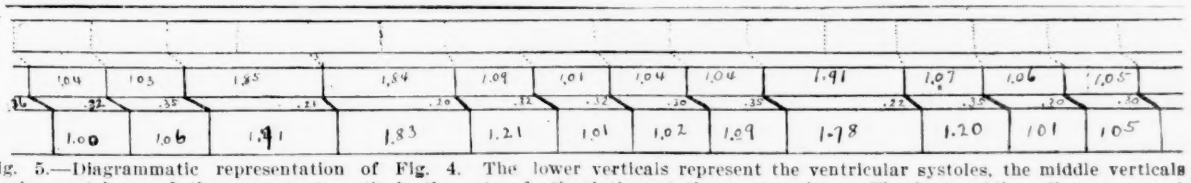

Fig. 5.—Diagrammatic representation of Fig. 4. The lower verticals represent the ventricular systoles, the middle verticals the auricular systoles, and the uppermost verticals the rate of stimulation at the venous sinus. The lower oblique lines represent the time taken in the passage of the contraction waves from the auricles to the ventricles. The upper oblique lines represent the time taken in passage from the great veins to the auricles. This latter is purely hypothetical.

It will be seen from the chart that the *a-c* interval was reduced from an average of 0.23 seconds to an average of 0.17 seconds, and that this reduction was proportionately greater than the reduction in the length of the total wave. This shortening must be due to the atropin, and, since atropin paralyses the vagus terminations in the heart, it supports the view that the vagus nerve influences the transmission of impulses from the auricles to the ventricles.

pause in the ventricular rhythm. Figure 4 shows three such long beats interposed in an otherwise regular rhythm. Similar beats occurred throughout the tracings taken at this time; sometimes singly, sometimes in series, so that two distinct rhythms appeared to be present. In Figure 4 the auricular waves *a* are well marked on the jugular tracing and are indicated on the apex tracing; yet, during the intermission, they are entirely absent on both. The duration of the intermission between auricular beats is nearly equal to twice the duration of the normal beats; while the duration of the auricular periods next succeeding the intermissions exceeds slightly that of the subsequent periods (Fig. 5).

2. "Analyse von fünf Fällen von Ueberleitungsstörungen," Ztfschr., f. exp. Path. u. Therapie, vol. II, p. 74.
3. "Vier Fälle von Störungen der Reizleitung im Herzmuskel," Deuts. Arch. f. klin. Med., vol. lxxxv, p. 373.
4. Hering: Cong. f. in. Med., 1906.

How are we to account for these intermissions? From the fact that the long waves are approximately twice the length of the short waves it seems most probable that the rate of stimulation has remained approximately constant, but that the auricles have failed for some reason to respond to certain of the stimuli. Such a failure to respond might be due to (1) weakness of the muscle, (2) an inadequate stimulus (weakness of the stimulus or refractory condition of the auricle), or (3) a block of the impulse before it reached the auricles. Against the first supposition we have the facts that the auricular contractions as shown on the tracings are well marked and that there is no sign of an alternation in the size of these contractions (a sign of weakness). Against the second and in favor of the third supposition is the fact that the intervals between the auricular beats immediately following the intermission are somewhat greater than the intervals between subsequent beats. This, as we have seen, is characteristic of the ventricular beats when the block occurs above the ventricles, e. g., at the auriculoventricular junction. As has been explained it is then due to the more rapid transmission of stimuli across this junction after a period of rest (Fig. 3). Similarly we may assume in the present instance that a block has occurred above the auricles, between these and the mouths of the great veins whence the contraction waves originate. Such a block can be produced experimentally in the turtle's heart by vagus stimulation, and venous tracings that were believed to indicate such a block in man have been published by Joachim[3] and by Wenckebach.[5] Joachim's tracings, however, are poor and unconvincing as to the absence of the auricular wave. Wenckebach's, on the other hand, are quite typical and hardly to be interpreted in any other way.

I have said that the duration of the intermissions in these cases was approximately twice that of the smaller beats. This relation is approximate only, however, for throughout my tracings the long beats, as in Figure 5, are always less than twice the length of the short beats. In some instances this may be explained entirely on the assumption of a block above the auricle. In other instances, however, this discrepancy is very marked; so that the average length of a series of long beats is but slightly in excess of half again the length of the short beats. I would explain these discrepancies by assuming that the rate of stimulation is quickened during the intermissions. When one remembers that the supposed block must be located near the point of origin of the stimuli, such a secondary involvement of the rate of stimulation is neither surprising nor improbable. This assumption is furthermore supported by the fact that a few portions of my tracings show an arrhythmia that can only be interpreted by assuming a variable rate of stimulation above the auricles.

5. Beiträge zur Kenntnis der menschlichen Herztatigkeit," Arch. f. Anat. u. Physiol., Abteil, 1906, p. 297.

A UNIQUE CASE OF EYESTRAIN.

PERCY R. WOOD, M.D.
MARSHALLTOWN, IOWA.

The eye may be designated as an end organ of the brain through which the latter discharges its visual function, thus explaining the disturbance of cerebral reflex centers by slight errors of refraction and consequent interference with various functional activities.

Twenty-five per cent. of all civilized people suffer from conditions dependent on ocular malfunction and clinically described as eyestrain. A large proportion of these cases is not reached because few physicians correctly diagnose the condition, the profession, as a whole, being poorly informed on this subject. If insomnia, nervousness, headache, indigestion and constipation may result from ocular defects, the physician should know this and so be able to prescribe the proper remedy.

Whenever our text-books emphasize more clearly, and our medical schools teach more explicitly, the pathogenesis of eyestrain, we may have recognized colleges for postgraduate work along these lines and laws confining the practice of opthalmology and refraction therapy to those especially qualified and licensed. This would protect the public from embyro specialists and opticians who do harm. If headaches and systemic disturbances of a digestional or psychic character, which are unrelieved by drugs, were referred to the ophthalmic surgeon, more satisfactory results would obtain.

Conditions predisposing to eyestrain often date from birth and attract attention only after serious consequences have accrued. A law requiring the examination of children's eyes and the correction of refractive errors before they are permitted to enter school would mean much in health and happiness.

As demonstrating that eyestrain leads to ignorance, invalidism, pauperism and crime, we find in statistics taken of the school children of Berlin that over 40 per cent have refractive errors. The number of children thus affected shows a decreased ratio from the lower to the higher grades, indicating that ocular defects are factors in reducing school attendance. Eighty per cent. of the patients at the National Hospital for Epileptics in London have serious ocular lesions.

The same deficiency appears to play a rôle in nervous diseases. The bulletin of Iowa institutions for 1903, by Dr. Applegate, indicates that nearly 50 per cent. of inebriates have ocular defects. Statistics also show that nearly 50 per cent. of the young criminals at the Elmira Reformatory have defective vision, which has been held responsible, in part at least, for their downfall.

The case given below is unusual. It demonstrates the depth and range of ocular reflexes, as well as the necessity of never overlooking the eye in making a diagnosis.

CASE 1.—Miss M. of Marshalltown, aged 10, first seen last June, was suffering from a group of symptoms easily recognized as being of ocular origin, viz., nervousness bordering on hysteria, melancholia, indigestion, headache, etc., but standing out from this striking clinical picture was one symptom, unknown in my experience, enuresis, occuring mostly at night. She had suffered from this distressing symptom for two years and had consulted many physicians and obtained no permanent relief. She had taken treatment for neurasthenia, indigestion, liver and kidney troubles.

Under a cycloplegic I found the following errors:

R. Sph. plus 1.50, Cyl. plus 0.87, axis 180.
L. Sph. plus 2.50, Cyl. plus 1.00, axis 175.

Notice the astigmatism against the rule. I prescribed:

R. Sph. plus 1.00, Cyl. plus 0.50, axis 180.
L. Sph. plus 2.00, Cyl. plus 0.87, axis 175.

The more aggravated symptoms gradually lessened in severity and now six months later she has entirely recovered.

The result in this instance goes to show that no obscure case of a functional, organic or psychic nature has received proper consideration until the eyes have been skilfully examined under a mydriatic and every phase of the case gone thoroughly into from an opthalmologic standpoint.

New and Non-Official Remedies

THE FOLLOWING ARTICLES HAVE BEEN TENTATIVELY ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR INCLUSION IN THE PROPOSED ANNUAL, "NEW AND NON-OFFICIAL REMEDIES." THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT, BUT TO SOME EXTENT ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE FINAL ACCEPTANCE AND PUBLICATION IN BOOK FORM.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(*Continued from vol. xlvii, page 2093*).

THIOSINAMINE.

ALLYL SULPHOCARBAMIDE. ALLYL THIOUREA. RHODALLINE.

Thiosinamine, $(NH_2).CS.NHCH_2.CH:CH_2$ = $C_4H_8N_2S$, is a condensation product of allyl thiocyanate and ammonia.

It is prepared by warming together volatile oil of mustard (chiefly allyl thiocyanate) and alcoholic solution of ammonia, collecting the crystalline product of condensation, and recrystallizing from alcohol.

It forms colorless crystals, having a slight alliaceous odor and bitter taste and melting at 74° C. (165.2° F.). It is moderately soluble in water, but is decomposed by this solvent. It is soluble in about 3 parts of alcohol and readily soluble in ether.

It is incompatible with water, which decomposes it, but this change is to a limited extent prevented by the presence of glycerin.

Actions and Uses.—Thiosinamine appears to cause or quicken the absorption of exudates, lymphatic swellings, scar tissue, etc., the action being unexplained. The opinions as to its value are contradictory.

It is recommended for use by hypodermic injection in lupus, chronic glandular tumors, cicatrices, etc. By the mouth in stricture, corneal opacity, chronic deafness.

Dosage.—0.03 to 0.1 Gm. (½ to 1½ grains) in capsules or tablet triturates; in subcutaneous injections, 0.05 to 0.2 Gm. (1 to 5 grains) in 15 per cent. alcoholic or 10 per cent. glycerinated water solution.

TRIFERRIN.

Triferrin is ferric paranucleinate; a compound of caseinparanucleinic acid with iron, containing 22 per cent. of iron, 9 per cent. of nitrogen and 2.5 per cent. of phosphorus in natural (organic) combination.

It is prepared by digesting cow's milk-casein with pepsin and precipitating the solution with a ferric salt.

It is a tasteless powder. It is soluble in weak solution of sodium hydroxide, but insoluble in weak hydrochloric acid (0.1 to 0.3 per cent.).

Actions and Uses.—In addition to its hematinic action derived from the iron, it is claimed to act like lecithin by reason of the phosphorus in organic combination which it contains. It is said to agree with the most sensitive stomach, since it passes the stomach unchanged, but is freely absorbed in the intestines.

It is recommended in anemia, chlorosis, neurasthenia, rhachitis and general debility.

Dosage.—0.3 Gm. (5 grains) in powder, taken during meals.

Manufactured by Knoll & Co., Ludwigshafen a. Rh. and New York. German patent No. 114,273. U. S. trademark No. 36,747.

TRIFERROL.

LIQUOR TRIFERRINI, KNOLL.

Triferrol is an elixir of triferrin, containing 0.06 Gm. (1 grain) triferrin and about 1 Cc. (15 minims) of alcohol in 4 Cc. (1 fluidram).

A soluble form of triferrin (soluble triferrin Knoll), is dissolved in a vehicle consisting of water, alcohol, tincture of orange, tinct. cardamom. co. and vanillin.

Actions and Uses.—It is introduced as a convenient substitute for triferrin.

Dosage.—16 Cc. (4 fluidrams) corresponding to 0.24 Gm. (4 grains) of the powder.

Manufactured by Knoll & Co., Ludwigshafen a. Rh. and New York. U. S. trademark No. 43,208.

TRIKRESOL.

A liquid said to consist of 35 per cent. orthocresol, 40 per cent. metacresol and 25 per cent. paracresol. It closely corresponds to Cresol, U. S. P.

Manufactured by the Chemische Fabrik auf Actien, vorm. E. Schering, Berlin (Schering & Glatz, New York). U. S. trademark No. 24,188.

TRIONAL.

A name applied to Sulphonethylmethanum, U. S. P.

Manufactured by Farbenfabriken, vorm. Friedr. Bayer & Co., Elberfeld, Germany (Continental Color & Chemical Co., New York). U. S. patent No. 396,526. (Expired).

TRIOXYMETHYLENE.

PARAFORMALDEHYDE.

Trioxymethylene, $(CH_2O)_x$, is a polymeric condensation of formaldehyde.

It is prepared by concentrating an aqueous solution (40 per cent.) of formaldehyde by evaporation.

It is a white, crystalline powder, melting at 171° C. (339.8° F). It is insoluble in alcohol or ether, but slowly soluble in water at ordinary temperature, more rapidly when heated, formaldehyde being regenerated as indicated by the vapors given off.

It responds to the tests for formaldehyde.

It has the same incompatibilities as formaldehyde: Bases, oxidizing agents, gelatin, tannin, etc.

Actions and Uses.—Antiseptic and escharotic. It is recommended internally for diarrhea. Externally it is used chiefly to generate formaldehyde by heating, for disinfection, for inhalations in phthisis and coryza. It is also recommended for warts.

Dosage.—Internally, 0.3 to 1 Gm. (5 to 15 grains); externally (for warts), in 10% suspension in collodion.

Manufactured by E. Merck, Darmstadt (Merck & Co., New York). It is not patented or trademarked.

TRITIPALM.

FLUIDEXTRACTUM SABALI ET TRITICI COMPOSITUM, STEARNS.

A fluidextract, each 4 Cc. (one fluidram) of which is said to represent: Fresh saw palmetto 2 Gm. (30 grains) and triticum repens 4 Gm. (60 grains) in a menstruum containing 20 per cent. of alcohol.

Dosage.—4 to 8 Cc. (1 to 2 fluidrams) four times a day, preferably with water.

Prepared by F. Stearns & Co., Detroit, Mich.

(*To be continued.*)

[List of all approved articles, advertising page 28.]

Theophyllin.—A correction: In THE JOURNAL, Dec. 22, 1906, page 2093, the chemical formula for Theophyllin should have been given as

$$\begin{array}{l} N(CH_3).CO.C.NH. \\ \quad | \qquad\quad || \qquad CH \\ CO.N(CH_3).C.N: \end{array}$$

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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[For other information see second page following reading matter.]

SATURDAY, JANUARY 5, 1907.

DEATHS OF THE YEAR.

During 1906, THE JOURNAL noted the deaths of 2,150 physicians in the United States and Canada, a death rate of 17.2 per thousand. This death rate does not differ materially from the estimated death rates of former years. The ages of the decedents varied from 22 to 103, the average being 58 years and 4 months, and the extremes of duration of practice were from 3 days after graduation to 71 years, the average being 22 years and 10 months. The American Medical Association lost 232 members during the year, or 10.8 per cent. of the total mortality. Heart diseases, cerebral hemorrhage, violence, nephritis and pneumonia, in the order named, headed the list of death causes.

In 15.35 per cent. of the deaths, the age could not be ascertained; in 35.95 per cent. the cause of death was not given or was not clear, and in 4.75 per cent. the duration of practice was not obtainable.

Death Causes.—On account of lay report and lack of detail, the verification of causes of death is difficult. Heart diseases, which include not only valvular lesions, but angina pectoris, endocarditis, myocarditis, dilatation and an uncertain proportion of sudden deaths set down as "heart failure," caused 262 deaths. Cerebral hemorrhage, which also includes certain sudden deaths and "paralysis," has a record of 182 deaths. Nephritis, which includes "kidney disease" and uremia, is said to have caused 135 deaths. Pneumonia caused 121 deaths; tuberculosis, 99; senile debility, 59; cancer, 48; typhoid fever, 38; septicemia, 29; appendicitis, 26; operations, nature not stated, 20; gastritis and meningitis, each, 19, and diabetes, 16.

Violence.—The deaths from violence numbered 150. Of these 103 were due to accidents, distributed as follows: Falls, 22; railway and street railway, 22; poison, 19; runaway, 11; drowning, 7; gunshot wounds, 4; ptomain, crushing, earthquake (California) and asphyxiation, each, 3; automobile and burns, each, 2, and throat cut and concussion of brain, each, 1. The suicides were 34 in number by the following routes: Gunshot wound, 16; poison, 9; cut throat, 4; starvation and drowning, each, 2, and strangulation, 1. Homicide is assigned as the cause of 13 deaths; one physician was killed in battle in the Philippine Islands, and one while assisting an officer in preservation of the peace.

Ages.—Sixty-two died below the age of 30; 464 above the age of 70; 204 were 80 years or over, and 18 attained the age of 90 or more years. The maximum of deaths occurred at the ages of 60, 63, 70 and 72 in each of which 49 deaths were reported.

Years of Practice.—In decades of practice 1,766 had passed one; 1,428, two; 989, three; 579, four; 247, five; 44, six, and one had passed 70 years in practice.

Military Medicine.—Of those who served their country in war, 217 veterans of the Civil War died, who followed the Federal fortunes, and 103 who served under the Stars and Bars; 5 had served in the Mexican War; 1 in the Indian War; 24 in the Spanish-American War, and 15 had seen foreign service. The Medical Department of the Army lost 54 members, the Navy 24, and the Public Health and Marine-Hospital Service 9 during the year. The National Guard lost 27 members, 3 of whom had been surgeons general of their respective states.

Civil Office.—One of the dead of the year had been governor of Maine; 12 state senators; 47 members of the legislature; 6 United States consuls; 19 had held state offices; 113 municipal offices; 34 had been mayors of cities or presidents of towns or villages, and 46 had been coroners. One hundred and nineteen had held professorships or taught in medical colleges, 60 had been members or chairmen of boards of education, and 28 had been members of state boards of health or of medical examination and regulation. Hospital appointments were held by 211; 141 were health officers; 18 were editors, lay and medical, and 66 were railway surgeons.

Among the dead of the year may be mentioned:

Dr. George Ryerson Fowler, Brooklyn, surgeon and writer.

Dr. Elisha Hall Gregory, St. Louis, president of the American Medical Association in 1886, surgeon and teacher.

Dr. De Saussure Ford, Augusta, Ga., Nestor of medical profession of state.

Dr. Charles Augustus Lindsley, New Haven, Conn., secretary and executive officer of State Board of Health, writer on public health and sanitation.

Dr. Charles Henry Alden, U. S. Army, brigadier-general, retired.

Dr. Mary Putnam Jacobi, New York, distinguished woman practitioner.

Dr. James Brown McCaw, Richmond, Va., in charge of Chimborazo Hospital, Richmond, during Civil War.

Dr. Philip Skinner Wales, surgeon general, U. S. Navy, retired.

Dr. S. Edwin Solly, Colorado Springs, specialist on tuberculosis.

Dr. Alonzo Garcelon, Lewiston, Maine, once governor of the state, stalwart member of Board of Trustees and supporter of the American Medical Association.

Dr. Fernand Henrotin, Chicago, gynecologist and surgeon.

Dr. William James Herdman, Ann Arbor, Mich., neurologist and pioneer in electro-therapeutics.

THE TYPHOID SPINE.

Many seemingly uncommon conditions as they are segregated by the pioneer clinician and attain prominence in medical journals become relatively common. This has been the history of many diseases, and this, we think, is what will happen with regard to the so-called "typhoid spine." Described first, we believe, by Gibney of New York in the late eighties of the last century and later emphasized by Osler, the literature on the subject increased to such an extent that last year Fluss was able to collect nearly fifty cases. This number is, of course, small, but no one who has worked with typhoid cases, and what general practitioner has not, will believe that it accurately represents the frequency of the condition. Doubtless many instances are still overlooked or misinterpreted, and many of the recognized examples do not get into the journals.

The most prominent features of the disease are the spinal pain with its accompanying disability, and the intensely neurotic condition into which most of the patients fall. The pain is a varying quantity, but is practically always present at some time or other during the course of the disease. In some patients it is intense, and it is frequently accompanied by spinal or nerve disturbances, paresthesia or anesthesia, weakness, spasm or atrophy of the muscles and a radiating distribution, all of which suggest a nerve root origin. The neurotic features of these cases are frequently marked and are usually extremely distressing, not only to the patient, who is often in a pitiful condition, but also to the physician and the family. In some of the cases the condition, which usually appears during convalescence, is accompanied by fever and leucocytosis, though pyrexia is lacking in a fair percentage of patients. The spine itself may show little definite change beyond stiffness and sensitiveness, but there may be actual deformity and some recent patients examined by the *x*-ray have shown actual bony deposit.[1]

There has been a good deal of dispute as to the nature of the process. Gibney favored the view that it is due to organic changes, probably in the form of a periostitis; Osler inclined to the belief that in most instances it is a neurosis. Of late years there has been a strong tendency to regard Gibney's original views as the more probable, and the case reports of McCrae certainly favor the idea that an actual organic lesion is often present. There is every reason why such organic changes should occur, if we judge by the behavior of the typhoid bacillus in bony structures elsewhere. Since Quincke first pointed out the frequency with which the causal agent in typhoid is to be found in the bone marrow, increasing attention has been paid to the osseous complications of the disease. Aside from actual osteomyelitis, periostitis is far from uncommon in typhoid fever, and even when actual osteomyelitis occurs it differs from the ordinary forms in its curious chronicity and tendency to spontaneous disappearance without suppuration. In view of McCrae's findings and other similar ones, it is reasonable to suppose that in most instances the typhoid spine, or better, typhoid spondylitis, is an organic lesion of an inflammatory nature associated with the presence of the typhoid bacillus in the periosteum or bony structure of the spinal column. The failure to find definite organic changes in patients with this condition is doubtless due to the difficulty of detecting changes in the spinal column when these are of a localized character and do not impair the integrity of the structure as a whole. That actual deformity may rarely occur is certain, but it seems to be uncommon.

It is to be hoped that the condition will receive the wider recognition to which its not infrequent occurrence entitles it. When recognized we believe that the practitioner should regard the condition as organic and regulate his treatment accordingly, unless the evidence of the neurotic nature of a given case is overwhelming.

1. McCrae: Amer. Jour. of Med. Sci., December, 1906.

OSTEOPATHY IN CONGRESS.

At the last session of Congress the Senate passed a bill (S. 5521) to regulate the practice of osteopathy, to license osteopathic physicians and to punish persons violating the provisions in the District of Columbia. The measure calls for a board "to be composed of five physicians in good standing—adherents of the osteopathic system of practice." This board is to be appointed by the commissioners of the district and should have the usual number of officers.

The bill provides: "From and after the passage of this act all persons desiring to practice osteopathy in the District of Columbia shall apply to said board for a license to do so. Applicants shall submit to examination on the following named branches, to wit: anatomy, physiology, chemistry, pathology, principles and practice of osteopathy, hygiene, histology, surgery, obstetrics and gynecology, medical jurisprudence and such other branches as said board shall deem advisable; but said board shall not examine any applicant until satisfactory proof is furnished that he or she is of good moral character and over twenty-one years of age, nor until he or she has presented a diploma issued to him or her by a reputable college of osteopathy, which, at the time said diploma was issued, required personal attendance on a course of instruction of not less than twenty-seven months. All examinations shall be both theoretical and practical and of sufficient severity to test the candidate's fitness to practice osteopathy. All questions propounded for the examination of applicants, except such as relate specifically to the treatment of disease, shall be the same as the questions to applicants for licenses to practice medicine under the provisions of an act entitled 'An act to regulate the practice of medicine and surgery, to license physicians and surgeons, and to punish persons violating the provisions thereof in the District of Columbia,' ap-

proved June 3, 1896, and the answers submitted by applicants for licenses to practice osteopathy shall be marked on a scale of severity equivalent to that adopted for the marking of the answers submitted by applicants for licenses to practice medicine. To the end aforesaid the president of the board of osteopathic examiners, in so far as relates to the selection of questions to be used in examinations and in so far as relates to the rating of the answers to said questions, whether questions propounded to or answers submitted by applicants for licenses to practice osteopathy or for licenses to practice medicine, shall be entitled to all the rights and privileges of the presidents of the several boards of medical examiners of said district."

This bill is remarkable in several particulars: In the first place it is a recession from the position declared by the promoters of this cult that osteopathy *per se* is a sufficient remedy with which successfully to treat all the ills to which flesh is heir. It now becomes apparent that these practitioners are to be licensed in surgery, obstetrics, gynecology, which, according to the phraseology of the measure, are separate and distinct from the principles and practice of osteopathy. This contradiction does away with the subterfuge under which osteopathy gained a footing in the various states, namely, that they were not physicians within the meaning of the law; that they did not treat disease in such a way or by such methods as to bring them properly within the purview of the law. This forfeiture of their claims is not, however, associated with a forfeiture of their demands for special privileges. The special privilege asked for and granted, so far as the U. S. Senate is concerned, to the representatives of this cult in Washington, consists of an evasion of an examination of fundamental branches under conditions imposed on all other applicants to practice the healing art. The provision that the questions shall be identical and that the grading shall be done on a scale of "equivalent severity" has again made surrender of the entire contention so far as the osteopaths are concerned. For, if the questions are identical and the grading is to be done on a scale of "equivalent severity," why should there be another set of persons designated to ask questions and to do the grading?

The whole thing, considered as judiciously as it may be, can only be construed as an effort on the part of persons deficient in fundamental qualifications to acquire the right to treat disease and thus assume responsibilities for which they are not qualified.

But the most pernicious feature of the whole measure is the effort on the part of the promoters of this measure to maintain and perpetuate the spirit of sectarianism in the profession in which a fundamental science is to be recognized as a unity. The advanced steps taken by the American Medical Association have gone far toward putting an end to this sort of thing by obliterating, in large measure, the lines of demarcation that define sectarianism in medicine. The promoters of this measure have sought to negative this, so far as the District of Columbia is concerned and so far as the influence of the bill passed by the National Congress is calculated to establish a precedent.

THE MOVING PHYSICIAN.

There is no royal road to professional success in medicine. Building a practice is proverbially slow work, but the man who, choosing his location with greater or less wisdom, burns his bridges behind him and doggedly waits, is he to whom success eventually comes.

One is struck, therefore, with the number of physicians who, having passed the "starvation period" of practice and commanding a certain degree at least of recognition, are unwilling to remain where they are, but seek what they believe to be fields with larger opportunities.

This thought is suggested by a terse little article[1] by one who is alive to the best intersts of the profession, Dr. James F. Percy, president of the Illinois State Medical Society. As he well puts it: "I believe that in the majority of instances, this moving is a mistake. The time lost in obtaining a new foothold in a perhaps more desirable and larger community, the money spent in answering the greater demands usually necessary when taking up one's work in a new field, the wear and tear on the nervous system of the man who has been used to being busy and forced again to sit and wait as in the beginning of his career, all of these things beat back rather than push forward the physician who attempts it. They could be more profitably exercised in re-developing the opportunities in the field already occupied."

Not only do such changes operate to the detriment of the physician, but the community also suffers. A high-minded, alert and public-spirited medical man is a power making for civic health and cleanliness. He is, by training and education, the man best able to guide and counsel the public in the numerous emergencies that arise in all localities: the control and prevention of epidemics; the healthfulness of the water or milk supply, or the disposal of sewage. No man who has uppermost in his mind the idea of getting away from a given locality at the earliest available opportunity, can take the same interest in its people as one whose life is indissolubly a part of theirs. Superficial observers may assert that such ideal considerations weigh as nothing, but we believe the time will come when physicians will feel toward the communities in which they live the same responsibility they now admit toward their individual patient.

From a purely selfish standpoint, however, it is to the interest of the physician to remain where he has attained a measurable amount of success. The busy village practitioner is one of its influential citizens: his children,

1. "A Little Preachment," Ill. State Med. Jour., December, 1906, p. 609.

instinctively knowing this, develop that fine spirit of *noblesse oblige* which makes for all that is best, his family has the *entrée* into the best society the town affords—in other words, he is more than a mere "doctor."

As to the amount of pleasure to be derived from such a life, that depends on the man. Each individual must get the pleasure of life out of his life-work, for he whose only recreation is found in his few weeks' stereotyped annual vacation leads a dreary existence indeed.

Whether this desire to move is but another phase of the social and business unrest of the day or a result of the all-pervading "get-rich-quick" spirit, we cannot say, but the tendency which is certainly more noticeable than in years gone by is—in our profession at least—to be greatly deplored.

GUARANTEE UNDER THE PURE FOOD ACT.

The pure food act properly places the responsibility for infractions of the law on the manufacturer and not on the retail dealer. Section 9 specifies that "no dealer shall be prosecuted under the provisions of this act when he can establish a guaranty signed by the wholesaler, jobber, manufacturer or other party residing in the United States from whom he purchases such articles, to the effect that the same is not adulterated or misbranded within the meaning of this act designating it." To facilitate the guaranteeing of products by the manufacturer the commission which was appointed to formulate the rules and regulations for the enforcement of the act directs that "a general guaranty may be filed with the Secretary of Agriculture by the manufacturer or dealer and be given a serial number, which number shall appear on each and every package of goods sold under such guaranty, with the words: 'Guaranteed under the Food and Drugs Act, June 30, 1906.'" With such a guarantee the dealer is relieved of responsibility; it is assumed by the one who gives the guarantee. Manufacturers of pharmaceutical products have hastened to file such guaranty with the Secretary of Agriculture so as to protect those who deal in their products. It is but natural that some manufacturers should seize on this as a means of impressing on us that their products are in strict compliance with the act itself. This, of course, is entirely erroneous. The guaranty filed is only an agreement by the manufacturer to be responsible for any infraction of the law, but it in no way guarantees that the provisions of the law are complied with. It is not alone on the public, but on the medical profession, that this deception is practiced. A certain French firm, for instance, is publishing in full-page advertisements its guaranty filed with the Secretary of Agriculture. It is evidently intended to mislead physicians into believing that the Government has examined and passed on the product, approved the labels, etc. It means nothing of the kind. The government officials may never have seen either the articles guaranteed or the labels they now or may in the future use. Physicians, above all others, should be conversant with the workings of this act, for they will be consulted more than any others. At the present juncture it is important that they should know that the fact that a guaranty has been issued does not in any way mean that the material conforms to the law, the object of the guaranty being, as is well set forth in the paragraph quoted, to protect the retail dealers from damages if prosecutions should result, and to throw the responsibility on the manufacturers.

HONORS FOR AN AMERICAN PHYSICIAN.

Dr. Thomas Addis Emmet of New York has been invested with the insignia of Knight Commander of the Order of St. Gregory the Great. This was recently conferred on him by the Pope for the success of his labors during a long life in saving women from suffering and in making life happier for a class of patients whose existence had become a continued discomfort. It is not often that foreign recognition comes to members of the American medical profession, though in Dr. Emmet's case interest in his work has always been more acute in Europe than in America. Dr. Emmet's first professional recognition, received nearly forty years ago, was an honorary membership in the Berlin Obstetric Society, conferred just after the publication of his work in 1868 on "Vesicovaginal Fistula from Parturition and Other Causes." This was followed very shortly by his election to membership in the Medical Society of Norway. It seems eminently fitting that Dr. Emmet, who has spent the working part of his eighty years mainly in the most active practice of his profession, should still experience the pleasure of knowing that his life-work is not unappreciated and that the honor thus conferred on him should call attention once more while he is still with us to all that he accomplished. One of the defects of our social and political system would seem to be that there is no formal method of conferring honors of this kind. Such honors must prove a precious consolation to the veteran member of the profession, who, while feeling that life is approaching its end, and hoping that it has not been lived in vain, yet has no visible symbol to tell him of others' appreciation. The French system which provides for such honors and decorations for work well done would seem to be worthy of our imitation.

FORESTRY AND TUBERCULOSIS.

A sanatorium for consumptives is being established in the forest reserves of Pennsylvania.[1] This state has at present the unique position of having large state forestry reservations, a state school of forestry devoted exclusively to the training of young men for its forest service and liberal forest laws. Some time ago the State Forestry Commissioner announced that citizens of Pennsylvania are entitled to the privilege of using the forestry reservation of the state under proper restrictions as a residence while regaining health, and recommended it especially to those in need of the fresh-air treatment for tuberculosis. This privilege has been utilized, with the aid of the state, in the establishment of the South Mountain Camp Sanatorium. In the spring of 1903 Dr. J. T. Rothrock, who was at that time commissioner of forestry, started the construction of a few small

1. Charities and the Commons, Dec. 1, 1906.

cabins for the use of such patients. At first the patients were obliged to provide and to prepare their own food, but the legislature has since appropriated enough to enable the management to furnish food, and the results have been better than before. Only patients in the incipient stages are admitted, and of the 141 so cared for about 75 per cent. have been either much improved or cured. The charge to the patients is one dollar a week for all supplies and services, except washing and the care of their cabins and their persons. The large forestry reserve allows of an indefinite extension of this method of dealing with the disease, and the small expense seems to point to it as a way to provide for the large class of patients who must be cared for in the incipient stages if the disease is to be checked and its victims restored to society as safe and potent factors in industrial progress. Dr. Rothrock believes that the forestry reservations furnish an answer to the further problem of how to care for the consumptive whose disease is arrested, but whose financial condition demands that he must still be cared for until able to return to his home. Pennsylvania has nearly a million acres of forest reservation, much of which needs replanting with young trees. To do this requires a large number of men, and the task of raising and transplanting trees is mostly light outdoor labor, well suited to the convalescent consumptive. In addition, there are various forms of woodcraft, such as basket making and the manufacture of small rustic articles that could easily be carried on under healthful conditions in the forests. The example of Pennsylvania suggests the propriety of other states taking similar steps and providing for the large number of consumptives who need care in an inexpensive and at the same time effective manner.

BONE METASTASES FROM HYPERNEPHROMA.

The work of a quarter of a century ago on the lodgment of emboli would have led one to expect that bone metastases should be common in any form of tumor whose cells escaped into the blood current. Experience has shown that something more than a mechanical factor is at work in these cases, and that the types of tumor which give rise to bone metastases are not very frequent. The not infrequent bone metastases with tumors of the breast, prostate, stomach and thyroid are well recognized, but it is only of late that we are beginning to realize that hypernephromata frequently cause secondary growths in the bones. Scudder's[1] recent study brings out some interesting facts. The most important one refers to the frequency with which these peculiar tumors are latent. Here, as is often the case with the metastasizing thyroid tumors, the original growth may remain so small as to be clinically inappreciable, while the metastasis is large and causes the patient to consult his physician. The bone metastasis, too, may be the only metastasis, a hopeful point from the surgeon's viewpoint. Another diagnostic aphorism is added by the paper, viz.: to examine the kidney region carefully in every individual past middle life with an apparently primary bone tumor.

1. Ann. of Surg., December, 1906.

AMYL NITRITE IN HEMOPTYSIS.

Inasmuch as the nitrites are classified with the cardiac stimulants the average practitioner is apt to overlook the fact that their effect on the heart is only a secondary one, or, at any rate, mainly so. At first sight it would seem homicidal to order a cardiac stimulant to a patient with pulmonary hemorrhage, and this indeed would be the case if amyl nitrite were a direct cardiac stimulant. We know, however, that the action of most importance is the dilatation of the superficial capillaries, and that the effect on the heart is mainly due to the fact that this capillary dilatation reduces the work of the ventricles by decreasing the peripheral resistance. Even if this be the case, the action of the drug in controlling pulmonary hemorrhage is not explained, for it has generally been assumed that the pulmonary capillaries also are dilated. The recent researches of Pic and Pettijean and clinical substantiation of his views as to the use of amyl nitrite in hemoptysis have led Hare,[1] who first introduced this treatment, again to direct attention to it. The French observers have shown by experiments on dogs that amyl nitrite strongly contracts the pulmonary vessels, and that the contraction persists for about ten minutes. On the clinical side Hare reports some 34 cases of his own and others, in all but one of which amyl nitrite in doses of from three to nine minims promptly controlled the bleeding.

1. Lancet, 1906, II, 1435.

Medical News

ALABAMA.

Licenses Revoked.—At a recent meeting of the Mobile County Society the permits of two dairymen of the city were revoked because they refused to allow the milk inspectors to make the tuberculin test on cows in their dairies.

To Prohibit Cocain Selling.—It is announced that a bill will be introduced by a medical member of the next state legislature to prohibit the sale of cocain within the state and to prevent, as far as possible, the manufacture of "patent medicines" in Alabama.

Hospital Notes.—A contract has recently been closed which provides for the location of a modern hospital and sanitarium at Anniston.——The City Hospital, Bessemer, is now completed and ready to receive patients.——The Robinson Hospital, Bessemer, was opened December 1 for the treatment of medical and surgical cases. It has 17 rooms and accommodations for 22 patients.

Society Meeting.—At the annual meeting of the Jefferson County Medical Society, held in Birmingham, December 17, Dr. Benjamin L. Wyman, Birmingham, was elected president; Dr. George A. Hogan, Bessemer, vice-president; Dr. James M. Mason, Birmingham, county health officer; Dr. Robert B. Harkness, health officer of Birmingham; Dr. Arthur F. Toole, Birmingham, secretary and treasurer, and Dr. Joseph D. Heacock, censor.

Personal.—Dr. Shirley Bragg, Montgomery, president of the State Convict Board, was knocked down by a buggy and injured while crossing a street, December 6.——Dr. Rhett Goode, Mobile, has been appointed chief surgeon of the Southern Railway, with headquarters at Mobile, and with jurisdiction over the lines of the company between and including the Columbus and Greenville, Miss., branches.——Dr. Charles T. Pollard, Montgomery, has been re-elected physician of Montgomery County.——Dr. William M. Cunningham, Corona, was robbed of $200 in a sleeping car recently.——Dr. Seale Harris, Union

Springs, has been made professor of medicine in the Medical College of Alabama, Mobile, vice Dr. George A. Ketchum, deceased.

CALIFORNIA.

Northern California Physicians Meet.—The sixteenth annual meeting of the California Northern District Medical Society was held in Sacramento November 13, and the following officers were elected: President, Dr. Elmer E. Stone, Napa; vice-presidents, Drs. Barton J. Powell, Stockton; Henry E. Sanderson, Stockton, and Trusten P. Peery, Yuba City; secretary, Dr. Joseph W. James, Sacramento; treasurer, Dr. Oscar Stansbury, Chico and censors, Drs. William E. Briggs, Andrew M. Henderson and Edward W. Twitchell, Sacramento, Dr. Walter E. Bates, Davisville and Dr. John Fife, Red Bluff. In the evening the society was entertained at a banquet by the Sacramento Society for Medical Improvement and Dr. Frederick W. Hatch officiated as toastmaster.

CONNECTICUT.

Higher Requirements at Yale.—Beginning in September, 1909, the requirements for admission to Yale Medical School will be at least two years of collegiate work, covering at least 15 hours per week, and must include inorganic chemistry, physics and general biology. By a proper choice of subjects the student may in six years secure both the bachelor of arts and doctor of medicine degrees. The school believes the preparation involved in the college entrance requirements and two years of collegiate work is an adequate preparation for professional study and the obtaining of the B.A. degree will not be required as essential for securing the M.D.

GEORGIA.

District Society Meeting.—The first annual convention of the physicians of the Sixth Congressional District was held in Macon November 8, at the call of Dr. M. Allie A. Clark, Macon, the district councilor. The following officers were elected: Dr. John R. Shannon, Cabaniss, president; Dr. J. A. Combs, Locust Grove, vice-president, and Dr. Eugene B. Elder, Macon, secretary and treasurer.

IDAHO.

Personal.—Dr. John E. Hoyt, formerly assistant physician at the Minnesota State Hospital, St. Peter, is now located at Moscow as assistant to Dr. Charles L. Gutman in his private Hospital.

Communicable Diseases.—Fourteen cases of smallpox are reported at Emmett.——An epidemic of smallpox is reported in the logging camps of Grimes and Doggett Creeks.——Smallpox is reported to have made its appearance in Hailey.——Diphtheria is reported to be epidemic in the Catholic schools of DeSmet, where 16 cases are reported.——The public schools of Stites have been temporarily closed on account of the prevalence of diphtheria.

ILLINOIS.

Hospital Notes.—The Sycamore City Council passed an ordinance December 14, to lease a building owned by Dr. Letitia A. Westgate, known as the Hospital Building, to be used as a city hospital.

Unlicensed Practitioner Fined.—In the case of O. B. Weeks, Springfield, charged by the State Board of Health with practicing medicine without a license, the defendant is reported to have pleaded guilty, December 8, and to have been fined $100.

Physician Freed.—Dr. John Cole, Williamsfield, charged with the death of Lena Ramp, in August, 1894, as a result of a criminal operation, has been released.

Opposes Publicity.—The Livingston County Medical Society, at its semi-annual meeting, adopted resolutions requesting the newspapers of Livingston County to refrain from publishing the name of any physician in connection with "operations, births, injuries or other medical matter."

To Ask Sanitarium for Insane Hospital.—A modern sanitarium, to cost $100,000, and to be devoted to the care of the aged insane patients of the Illinois Western Hospital for the Insane, Watertown, is an improvement which the superintendent and trustees will ask of the new legislature.

Communicable Diseases.—An epidemic of scarlet fever is said to be raging at Aledo.——Monmouth is suffering from an epidemic of typhoid fever, from which several deaths have already occurred.——Middletown is experiencing an epidemic of diphtheria.——The State Board of Health has decided that the disease believed to be smallpox at Benton and Bradford is varicella and not variola.

Personal.—Fire destroyed the offices of Drs. Adam A. and Wiliam E. Franke, at Newton, December 6.——Dr. Emmett A. Garrett, Peoria, has been appointed assistant physician to Peoria County.——Dr. Theodore C. Hays, Canton, was injured in a wreck near Chicago, December 11, breaking his leg and sustaining severe contusions of the body.——Dr. Amos S. Bickel, North Chillicothe, is still seriously ill at the St. Francis Hospital, Peoria.——Dr. George W. Parker has been appointed supreme medical examiner for the Peoria Life Insurance company.

Society Election.—At the thirty-third annual meeting of the Northern Central Illinois Medical Association the following officers were elected: President, Dr. Edgar P. Cook, Mendota; vice-presidents, Drs. Edward S. Murphy, Dixon and Dr. David W. Jump, Plainfield; secretary-treasurer, Dr. George A. Dieus, Streator, and censors, Dr. Franklin A. Turner, Sandwich, John C. White, Seatonville, Joseph I. Knoblauch, Metamora, James J. Pearson, Pontiac, Roy Sexton, Streator, and Stephen O. Hendrick, Henry. A dinner was tendered the members of the association by the Ottawa Tent Colony for Tuberculosis in the evening.

Chicago.

Warned Against Impostor.—The medical profession is warned against an impostor named Goodman, a man about 5 feet 9 inches in height, 145 pounds in weight, and 55 years old, with brown hair, small sandy mustache, and blue eyes, who has represented himself to be a graduate of the University of Michigan, class of 1871, and of Jefferson Medical College, Philadelphia, who tells a pathetic story which he ends by attempting to sell an automatic gas burner, said to have been invented by himself, at an exorbitant price.

Hospital Notes.—A final order has been made by Judge Cutting for the payment of $50,000 from the estate of the late Marshall Field to the Presbyterian Hospital.——Plans are being prepared for a five-story addition to the Hospital of St. Anthony of Padua, to cost about $100,000.——The Chicago Methodist Social Union has planned for a grand meeting to be held in the interest of Wesley Hospital for the purpose of raising the endowment fund of $100,000.——All but 10 per cent. of the $700,000 necessary to build the new home for the Michael Reese Hospital has been subscribed. At a dinner held at the Standard Club, December 27, pledges were received amounting to $230,000.

Personal.—Dr. John H. Chew has been elected president of the Chicago Policlinic, vice Dr. Fernand Henrotin, deceased.——Dr. Marcus Reichmann has been appointed lecturer on radiology at the Chicago Policlinic.——Dr. Simon Brownstein has been placed in charge of the newly organized medical department of the Hebrew Protective Association.——Dr. D'Orsay Hecht has been appointed attending neurologist to the St. Elizabeth's Hospital.——Dr. William L. Secor has opened a private sanitarium to be known as Thornton Villa, at La Grange, Ill., especially for physiologic therapeutics.——Dr. Wilhelmina H. Jacobs has been appointed assistant physician at the Illinois Southern Hospital for the Insane, Anna.

INDIANA.

Medical Association Meeting.—The Fort Wayne Medical Society at its recent annual meeting elected the following officers: President, Dr. James B. McEvoy; vice-president, Dr. Calvin H. English; treasurer, Dr. William P. Whery; secretary, J. Clifford Wallace, and Dr. Edward J. McOscar, censor.

Epileptic Village Report.—In the first annual report of the State Epileptic Village in Henry County, the superintendent, Dr. Walter C. Van Nuys, asked an appropriation of $525,000 for the erection of the necessary buildings and also stated that $120,000 more will be necessary if quarters are provided for helpless epileptics at the village. The institution will be ready to receive 50 patients early this month.

Mistake in Death Certificate.—Dr. Elbert W. McAllister, South Bend, who is reported to have been arrested on complaint of the secretary of the city board of health for failure to report a case of contagious disease, stated that in filling out the death certificate, he gave the cause of death as membranous croup, when it should have been croupous pneumonia. The case against Dr. McAllister was dismissed.

Pension Board Fined.—The members of the Elkhart County Pension Examining Board, Drs. Irvin J. Becknell, Goshen; W. A. Price, Nappanee, and William F. Hani, Middlebury, are said to have been fined $100 and costs each in the federal court at Indianapolis recently on account of having made improper charges for pension examinations. The three physicians,

while admitting the charges, declared that they were innocent of any intentional wrongdoing.

Communicable Diseases.—Bluffton reports 28 cases of diphtheria.——Smallpox has again broken out in Mishawaka.——The city council of Marion has appropriated $400 for the health department, to be used in fighting diphtheria and smallpox. ——Measles are reported to be epidemic all over Wayne County. Several schools in the county have been ordered closed on account of the prevalence of the disease.——During November 12 cases of typhoid fever were reported to the health officer of Upland.——During November 64 cases of smallpox were reported in Miami County, more than 50 of which were in the City of Peru.——The first case of smallpox in Fort Wayne for many months was reported December 16.

Personal.—Dr. Jacob B. Casebeer, Auburn, has been elected secretary of the Whitley County Board of Health, vice Dr. Irven O. Buchtel.——Dr. William S. Campbell, Lafayette, has been made secretary of the Tippecanoe County Board of Health, vice Dr. Frederick T. Hiner, West Lafayette.——Drs. H. Clay Meek and Jesse L. McElroy have been appointed by the board of health of Indianapolis as externes at the city dispensary. ——Dr. James W. Squires, Fort Wayne, who has been critically ill for several days with septicemia and pneumonia, is reported to be improving.——Dr. Richard J. Wilson and daughter, Salem, have gone to Southern California for the winter.——Dr. Charles W. Shill, Lafayette, has been appointed physician for the Tippecanoe County Farm.——Dr. William D. Milroy, Logansport, who has been seriously ill with typhoid fever, is reported to be improving.——Dr. George H. Grant, Richmond, has gone to California for the winter.

Commemorative Banquet.—On Saturday evening, December 29, the alumni of the old Medical College of Indiana, the Central College of Physicians and Surgeons, and the Fort Wayne College of Medicine, united in a banquet at Indianapolis to commemorate the combining of these three schools into one to form the Medical Department of Purdue University. There were nearly five hundred present at the banquet. Prof. Stanley Coulter of Purdue acted as toastmaster. The principal speaker was Dr. Frank Billings, Chicago, who delivered an address on "Medical Education." Dr. George H. Simmons, Chicago, spoke on the preliminary requirements for entrance to medical colleges, and urged that these be controlled by the state. Among the other speakers were Winthrop Ellsworth Stone, Ph.D., president of Purdue; Mr. James Whitcomb Riley, Mr. Williams, editor of the Indianapolis *News;* Dr. Frank B. Wynn, Indianapolis, and others. Mr. George Ade, who was to have spoken, sent a telegram saying that he was detained on account of the serious illness of his mother. Letters expressing regret at not being able to be present were read from Dr. H. W. Wiley, of Washington, D. C., a graduate of the Medical College of Indiana, and at one time professor of chemistry in Purdue University; Dr. Lewellys F. Barker, Dr. Stemen, and others. Senator Beveridge, who was to have been one of the principal speakers, was unable to get nearer than Chicago, owing to missing railroad connections. From Chicago he telephoned a ten minutes talk, which was read by Dr. A. E. Sterne.

MARYLAND.

Diphtheria Closes School.—The Pikesville public school was ordered closed December 17, on acount of the prevalence of diphtheria.

Dormitory to Be Erected.—A large dormitory is to be erected at the University of Maryland, Baltimore, for the use of the students of the medical school. It is to be located on the corner opposite the university, and it is hoped that it will be ready for ocupancy by the time of the centennial.

Alumni Meeting.—A mass meeting of all departments of the University of Maryland, Baltimore, will be held January 24, to stir up interest in the growth and development of the University and especially in the approaching centennial. Dr. Hampson H. Biedler is chairman of the committee having the matter in charge.

MASSACHUSETTS.

Emergency Room at Factory.—Ex-Governor Douglas, Brockton, has announced the installation of an emergency room in his factory, with a physician and nurse in regular attendance, for the free treatment of employés. The plan went into operation January 1.

Bequests.—A bequest of $50,000 has been received by the Harvard Medical School, from Charles J. Jackson, in memory of Prof. John Homans, to be used for the needs of the new medical school.——The Harvard Medical Alumni Association has given $3,000 toward raising the salaries of some of the younger instructors.

Eye, Ear, Nose and Throat Men Meet.—A majority of the specialists on eye, ear, nose and throat of western Massachusetts met in Springfield, December 4, and formed the Western Massachusetts Ophthalmological and Otological Society. A constitution and by-laws were adopted and the following officers were elected: President, Dr. Clarence R. Gardner, North Hampton; vice-president, Dr. Charles R. Chapman, Springfield; secretary and treasurer, Dr. Vincent J. Irwin, Springfield, and censors, Drs. William G. Craig, Springfield, Benjamin P. Croft, Greenfield, and Frederick T. Clark, Westfield. The society will hold bimonthly meetings and at the next meeting, January 8, the president will entertain the society at dinner.

MINNESOTA.

Valley Physicians Meet.—The twenty-seventh meeting of the Minnesota Valley Medical Association was held in Mankato, December 7, under the presidency of Dr. Michael Sullivan, Adrian. The following officers were elected: Dr. Adolph O. Bjelland, Mankato, president; Drs. Louis A. Fritsche, New Ulm, and Henry B. Grimes, Lake Crystal, vice-presidents; Dr. Adolph G. Liedloff, Mankato, secretary, and Dr. George F. Merritt, St. Peter, treasurer.

Union Meeting.—The physicians of Blue Earth County entertained the members of the Brown and Redwood County Medical Society in Mankato, December 3, and afterward a joint meeting of the societies was held. Dr. Harry A. Tomlinson, superintendent of the State Hospital, St. Peter, was the guest of honor. A resolution was adopted at the joint session asking the legislature to make a suitable and liberal appropriation for the maintenance and improvement of the Walker Sanatorium for Tuberculosis.

MISSOURI.

Tri-County Meeting.—At the recent meeting of the Gasconade-Maries-Osage Counties Medical Society, held in Meta, Dr. W. R. Ferrell, Bland, was elected president; Dr. Marion E. Spurgeon, Red Bird, vice-president; Dr. Julius W. Nieweg, Lois, secretary-treasurer; Dr. John J. Ferrell, Owensville, delegate to the state association, and Dr. Samuel J. Terrill, Meta, censor.

Iowa and Missouri Physicians Meet.—The third annual meeting of the N. S. Davis District Medical Society was held in Kahoka, November 13, and the following officers were elected: President, Dr. Frank B. Dorsey, Keokuk, Iowa; vice-presidents, Drs. W. H. Martin, Kahoka, Mo., and Dr. Downing, Milton, Iowa, and secretary and treasurer, Dr. Oscar F. Pile, Memphis, Mo. The next meeting will be held in Keokuk, Iowa.

Licenses Revoked.—At the meeting of the State Board of Health, November 28, it is reported that the licenses of Dr. A. M. Goldstadt, St. Louis, and A. M. Disbro, Denver, charged with unprofessional conduct, were revoked. In the first instance, it is said that the accused fraudulently advertised himself as a representative of the State Board of Health, and in the second it was alleged that the license had been obtained by a fraudulent affidavit.

NORTH CAROLINA.

Medicolegal Society Elects Officers.—At the last meeting of the Society of Medical Jurisprudence Mortimer C. Addoms was elected president. Wilbur Larremore read a paper on "Criminal Responsibility," treating of the causes of crime and the best means of restraining and preventing it by scientific punishment.

Society Election.—At the annual meeting of the Mecklenburg County Society, Dr. John R. Irwin was elected president, Dr. Thomas F. Costner, vice-president and Dr. William D. Witherbee, secretary and treasurer, all of Charlotte.——The Wake County Medical Society at its recent meeting elected Dr. James M. Templeton, Carey, president; William H. Boone, Morrisville, vice-president; Dr. William C. Horton, Raleigh, secretary; Dr. Kemp P. Battle, Jr., Raleigh, treasurer, and Dr. Wisconsin I. Royster, Raleigh, censor.——The Lenoir County Medical Society at its annual meeting elected Dr. James M. Hodges, La Grange, president; Dr. R. W. Wooten, Kinston, vice-president; Dr. Claude L. Pridgen, Kinston, secretary, and Dr. R. A. Whitaker, Kinston, delegates to the state society. A resolution was unanimously adopted declaring that members of the society should not make old insurance examinations for less than $5, regardless of the question of urinalysis. This resolution applied to all, except fraternal or benevolent societies. A resolution was also adopted that no member should treat a case of sickness which had been under the care of a physician, except as consultant, unless the said physician had

given up the case voluntarily, or unless satisfactory arrangements had been made with him concerning his bill; this resolution not to apply to emergency calls.

NEW YORK.

Gift to Troy Hospital.—Peter McCarthy has given $100,000 to be divided among the charitable institutions of Troy. The Troy Hospital is one of the chief beneficiaries.

Gives Site for Hospital.—O. E. Jones of Jamestown has given a deed for twenty-seven acres of land near the center of the city, valued at $50,000, as a site for a non-sectarian hospital.

New York City.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended December 22, 320 cases of tuberculosis, with 171 deaths; 280 cases of diphtheria, with 36 deaths; 184 cases of scarlet fever, with 13 deaths; 154 cases of measles, with 6 deaths; 101 cases of whooping-cough, with 11 deaths; 62 cases of typhoid fever, with 10 deaths; 6 cases of cerebrospinal meningitis, with 10 deaths; 110 cases of varicella and 6 cases of smallpox, a total of 1,223 cases and 257 deaths.

Hospital Acquires Land.—The German Hospital and Dispensary has acquired a piece of property, valued at $400,000, for the nominal sum of $5,000, in accordance with a law passed by the Legislature in 1903 providing for the sale of this piece of land to the hospital for a nominal sum. This law makes it possible for the city to make such gifts to charitable institutions. The German Hospital is now erecting a new dispensary on this property, which will be open in a short time. The money for the erection and maintenance has been provided by Mrs. Anna Woerishoffer and the late Edward Uhl.

Beth-Israel Hospital.—At the seventeenth annual meeting of the Beth-Israel Hospital Association six checks were handed in aggregating $27,500. Five of these were for $5,000 each, and were from Jacob H. Schiff, Adolph Lewisohn, U. Herrmann, S. Bachrach, and S. J. Silberman, and one check for $2,500 was from Mortimer L. Schiff. During the past year there were 1,535 free patients treated out of a total of 2,377, and more than a thousand applicants were turned away for lack of facilities. It has been planned to build an addition to the hospital on an adjoining site, which has already been acquired with the money just donated.

OHIO.

Hospital Association Formed.—The Oberlin Hospital Association has been organized by eight physicians and eight laymen. The following officers have been elected: Dr. Fred E. Leonard, president; Dr. William C. Bunce, vice-president; Dr. Charles H. Browning, secretary, and Mr. Frank Dick, treasurer. The object of the association is the establishment of a hospital.

Ohio Association of Medical Teachers.—The second annual meeting of this association was held at Columbus, Dec. 26, 1906. Between ninety and one hundred delegates were present and the meeting was considered a great success. Among the subjects under discussion were the medical college curriculum, subjects of the medical college curriculum which may be taken in a college of liberal arts, the state board of examination, and reciprocity. The officers elected for the next year are as follows: President, J. C. Oliver, Cincinnati; first vice-president, W. A. Dickey, Toledo; second vice-president, C. E. Walton, Cincinnati; secretary, F. C. Waite, Cleveland; treasurer, J. G. Spenzer, Cleveland; executive committee, J. K. Scudder, Cincinnati; A. V. Phelps, Cincinnati; C. S. Hamilton, Columbus; F. D. Simons, Cleveland; and W. J. Means, Columbus.

PENNSYLVANIA.

Insane Hospital Investigation.—The legislative investigation into the state asylums was resumed this week. The committee visited the Norristown Hospital, which has been reported to be sadly in need of money. The trustees of the hospital have asked the state for $417,000.

The Scranton Epidemic.—The 700-mark in the typhoid fever cases was passed this week when 60 new cases were reported, making a total of 75 so far reported for the month. Three additional deaths were reported. Mayor Limmick, Dr. Kellar and other members of the bureau of health visited the typhoid-infected foreign colony in West Scranton. It is believed that many cases are not reported.

Philadelphia.

Correspondent Married.—In the issue of December 29 was noted the marriage of Dr. P. Brooke Bland, correspondent of THE JOURNAL in Philadelphia, to Miss Susan L. Montgomery, daughter of Dr. Edward E. Montgomery, vice-chairman of the Board of Trustees of the American Medical Association.

Officers Elected.—At the annual meeting of the Aid Association of the Philadelphia County Medical Society the following officers were elected: President, Dr. George B. Woodward; vice-president, Dr. Charles K. Mills; treasurer, Dr. John B. Turner; secretary, Dr. Lewis H. Adler, Jr., and directors, Drs. Charles A. Oliver, Roland G. Curtin and Samuel W. Morton.

Health Report.—The deaths from all causes for the week ended December 29 was 532, an increase of 32 over the number reported the previous week, and an increase of 41 over the corresponding week of last year. The increase in deaths and in contagious diseases is attributed by the health authorities to the cold, damp weather. The principal causes of death were: Typhoid fever, 22; diphtheria, 9; tuberculosis, 59; cancer, 18; apoplexy, 21; heart disease, 48; pneumonia, 37, and Bright's disease, 45.

SOUTH DAKOTA.

National Sanatorium.—The National Sanatorium at Hot Springs, with accommodations for 200 or 300 patients, will be ready for occupancy early in April. Dr. Rudolphus D. Jennings has been appointed governor.

Personal.—Dr. Hamilton H. Wilcox, formerly of Albert Lea, Minn., has been appointed surgeon-in-chief of the National Soldiers' Home, Hot Springs.——Dr. John E. Corrigan, Canton, has moved to Sioux Falls, where he will take charge of the Dunham Hospital.

Medical Society Meetings.—At the annual meeting of the Watertown District Medical Society, December 11, Dr. Franklin H. Staley, Clear Lake, was elected president.——At the annual meeting of the Fourth District Medical Society at Huron, December 17, Dr. Oscar R. Wright, Huron, was elected president; Dr. Port McWhorter, Miller, vice-president; Dr. Charles J. Lavery, Fort Pierre, secretary and treasurer, and Dr. J. C. Waslesh, Pierre, censor.——At the meeting of the Mitchell District Medical Society, held at Mount Vernon, December 5, Dr. Thomas B. Smiley, Mount Vernon, was elected president; Dr. Rodell C. Warne, Mitchell, vice-president; Dr E. Frank Reamer, Mitchell, secretary, and Dr. Frederick W. Freyberg, Mitchell, treasurer.

TEXAS.

Society Meetings.—The El Paso-Big Springs Medical Association held a business session November 21, at which Dr. John B. Thomas, Midland, was elected president; Dr. Jim Camp, Pecos, vice-president and Dr. Newton J. Phenix, Colorado City, secretary and treasurer. The society adopted a resolution objecting to the disposition of life insurance companies to reduce the examination fee below $5.00. The next meeting will be held in May, 1907, at Midland.——The Northeast Texas Medical Association met in Marshall, November 15. The State Medical Association was asked to grant a charter to the society as the official district society for the northeast district and Dr. Holman Taylor, Marshall, councilor for the district, announced the approval of the state society and formally declared the transfer made. A committee consisting of Dr. Preston Hunt, Texarkana, William H. Blythe, Mount Pleasant and W. L. Baber, Winnsboro, was appointed to make recommendations looking into the rearrangement of the district in the northeastern portion of the state. The society adopted a resolution that nothing less than a $5.00 fee is adequate for life insurance examination. The following officers were elected: President, Dr. Preston Hunt, Texarkana; vice-president, Dr. W. L. Baber, Winnsboro; secretary, Dr. Robert H. T. Mann, Texarkana; treasurer, Dr. Charles A. Smith, Texarkana; councilors, Drs. Oscar Dowling, Shreveport, La.; Dr. Oliver M. Heartsill, Marshall, William H. Blythe, Mount Pleasant and Dr. Thomas S. Ragland, Gilmer. Texarkana was selected for the next meeting, which occurs in April, 1907.

WEST VIRGINIA.

Personal.—Dr. Lonzo O. Rose, Parkersburg, while experimenting with chemicals, was overcome by the fumes and rendered unconscious. He was later found by one of his assistants and resuscitated.——Dr. Clifford Sperow, Martinsburg, has been appointed parish physician for the Martinsburg district, vice Dr. Theodore R. Oates.——Dr. W. F. Leech, Riversville, has been appointed physician in the Canal Zone.

County Society Election.—At the meeting of the Cabell County Medical Society, held in Huntington December 13, Dr. C. C. Hogg was elected president; Dr. C. M. Hawse, vice-president; Dr. James R. Bloss, Huntington, secretary; Dr. I. R. LeShe, treasurer, and Dr. Oscar Kent, censor. The questions of insurance fees and the "patent-medicine" evil were discussed, and the stand taken by the American Medical Association was endorsed.

WISCONSIN.

Medical Society Meeting.—At the annual meeting of the Kenosha Medical Society Dr. William H. Saunders was elected president; Dr. Henry J. Stalker, vice-president; Dr. J. Russell Eastman, secretary and treasurer, and Dr. Frank E. Steven, Bristol, censor.

Milwaukee Medical College Joins Marquette College.—Word has been received from Dr. W. H. Earles that the Milwaukee Medical College has become the medical department of Marquette College. It is said that the college will occupy the new building at Grand Avenue and Twelfth Street. The academic department will use the present college building at State and Tenth Streets, and the medical department will continue to use the medical college at Ninth and Wells Streets.

Medical Department for the University of Wisconsin.—The committee on legislation of the University Board of Regents, at its annual meeting in Madison, November 27, considered the establishment of a medical college at the University of Wisconsin. A bill will be introduced in the next Legislature asking for an appropriation of $50,000 to start the new department. The plan is to give the students the first two years of their medical course at Madison. The college is to be known as the Medical School of the University of Wisconsin.

GENERAL.

Wabash Surgeons Meet.—The twenty-fifth annual meeting of the Wabash Railway Surgeons' Association was held in St. Louis, November 8, under the presidency of Dr. Burke Powell of Albia, Iowa. The following officers were elected: President, Dr. Clifford Kirkpatrick, Adrian, Mich.; vice-president, Dr. Walter M. Pritchett, Glasgow, Mo., and Dr. Christian B. Stemen, Kansas City, Mo. (re-elected), secretary. At the banquet which closed the session the secretary, Dr. Christian B. Stemen, who has served in that position for more than a quarter of a century, was presented with a silver loving-cup.

Urologists Regret Death of Otis.—At the regular meeting of the second section of the American Urological Association, held in New York, October 24, the report of a committee was adopted stating that in the death of Dr. William K. Otis of New York City, the association had "lost one of its founders, one of its most active coadjutors, one of its truest adherents," and that the association "shares with the family of William K. Otis, with the profession at large, and with that world in which true manhood is understood and appreciated, that deep grief which the death of so noble a character inspires."

The Military Surgeon.—Beginning with the issue for January, 1907, the *Journal of the Association of Military Surgeons*, the pioneer military medical journal in the English language, which has attained deserved success in its work in a new and hitherto unoccupied field, and has been instrumental in creating a reliable and remarkable line of medico-military literature, assumed the new name authorized at the meeting of the Association of Military Surgeons of the United States last year, and will henceforth be known as the *Military Surgeon*. It will remain, as before, under the competent editorial management of Major James Evelyn Pilcher, U. S. Army, retired.

Cholera in the Philippines.—Dr. Victor Heiser, chief quarantine officer for the Philippines, reports that cholera has practically disappeared from the Island of Luzon, which includes Manila. The outlook for the province of Iloilo is grave, principally on account of the attitude of the people toward the outbreak. In spite of the fact that 630 cases with 446 deaths were reported for the week ended October 27, they refuse to believe that true cholera is present, and they are entirely indifferent to the recommendations of the health authorities. The disease, so far, has been confined entirely to the province of Iloilo, thus showing that the outgoing quarantine imposed on vessels has been effective.

Annual Report of the Surgeon-General of the Navy.—Dr. P. M. Rixey, Surgeon-General of the Navy, in his report for the year ended June, 1906, declares that the establishment of the United States Naval Hospital Corps has been a great advance toward providing for the Navy a body of trained nurses and hospital stewards. A constant effort has been made to secure and to retain men of sobriety, intelligence, aptitude and fair education. Dr. Rixey calls attention, however, to the fact that few of these men re-enlist, and that thus the Navy loses the services of men who have had four years' training. As present conditions do not attract men of the corps to re-enlist, and as the supply of recruits is not sufficient, it is evident, he states, that without offering additional inducements in pay and in prospects of promotion, it will be impossible to obtain the requisite number of recruits and to retain experienced men. The term of instruction in the Hospital Corps Training School has been extended to four months, and it is intended to inaugurate a course of instruction following a service at sea. Dr. Rixey also calls attention to the special aptitude of women for the care of the sick, and says that the bureau is desirous of obtaining for duty at naval hospitals and on ambulance and training ships a corps of trained women nurses. The bureau, he states, recommends that legislation authorizing the employment of women nurses be requested of Congress. Attention is also directed to the need for dentists, and a hope is expressed that before long steps may be taken to provide for the Navy what the Army has long enjoyed—a corps of dental surgeons. The report includes summaries of the conditions at the various naval stations in the United States and its island possessions. During the year there were 268 deaths in the Navy and Marine Corps, a ratio of 6.48, which is slightly greater than that of the previous year. The diseases causing the greatest number of admissions to the sick list were: Tonsillitis, 2,397; gonorrhea, 2,085; wounds, 1,308; bronchial affections, 1,032; malaria, 1,024; syphilis, 981; epidemic catarrh, 926; rheumatic affections, 924. Admissions for tuberculosis, typhoid fever and pneumonia were 243, 172 and 145, respectively, a slight decrease over the previous year. In comparing these returns with those of the previous years, Dr. Rixey states that it is noteworthy that though the ratio of admissions to the sick list per 1,000 is less, the mortality is greater. Among the causes which increased the latter was the disaster to the U.S.S. *Bennington*, which resulted in 66 deaths.

FOREIGN.

Cancer Hospital in Scotland.—The Cancer Hospital at Dundee Royal Infirmary is now open for inspection. The hospital was given to the infirmary by Mr. J. H. Caird who has offered $5,000 annually for five years for research work in connection with cancer.

South African Medical Congress.—The South African Medical Congress was held at Bloemfontein, Orange River Colony, during the first week in October. About 70 physicians were present. The congress was opened by the Hon. F. Wilson, C.M.G., acting lieutenant-governor of the colony, who discussed the various laws affecting medical men and the public health. Dr. A. E. W. Ramsbottom, president of the congress, strongly advocated unity among the medical men in South Africa.

French Society of Military Surgeons.—The Société de Médecine Militaire Française has recently been organized and held its first meeting at Paris in November. The society is to publish an organ of its own, and numbers of civilian physicians have joined the society as associate members. Delorme is president, and in his address emphasized the great differences existing between the medical and surgical pathology of the soldier, even in times of peace, and that of other adults. This is owing to the difference in the mode of life and the environment, the large numbers collected under one roof or in camp and other varying conditions which require special prophylactic and curative measures. His address is reproduced in full in the *Progrès Méd.* for December 1.

Banquet Tendered the Press by Spanish Physicians.—The country doctors in Spain who have charge of the vaccinating and certain other official duties have long been protesting against the unjust remuneration allowed them. They have been organizing of late years, and now issue a publication of their own, the *Boletin de la Asociacion de Médicos Titulares*, and have recently been holding a general assembly at Madrid. One of the features of the meeting was a banquet tendered by the médicos titulares, as they are called, to representatives of the political and medical press. The assembly also discussed a number of questions affecting legislation on sanitary matters and their duties and remuneration, and also the proposed homage to Cajal on his return from his trip to Stockholm to receive the Nobel prize. The organization already effected has produced a number of tangible results. Among the resolutions adopted in the assembly was a vote of thanks to the railroads for the unexpectedly favorable terms allowed the delegates.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, Dec. 8, 1906.

Action Against Surgeons for Negligence.

An action for negligence brought by a mining engineer against Mr. Lynn Thomas, consulting surgeon Mr. H. E. Skrvme, general practitioner of Cardiff, has attracted considerable attention. A large number of the most eminent surgeons of London appeared as witnesses on one side or the other. The plaintiff, while riding a bicycle, was knocked

down and dragged by a trap. He summoned his regular attendant, Mr. Skryme, and said to him, "I think my arm is broken." He alleged that the physician diagnosed dislocation of the humerus, and attempted reduction by the heel-in-the-axilla method and put the arm in a sling. The plaintiff being anxious about his condition, Mr. Lynn Thomas, the leading surgeon in South Wales, was summoned. On moving the arm Mr. Thomas found crepitus, but he recommended that the treatment adopted by Mr. Skryme should be continued. Subsequently a skiagram was taken and showed a transverse fracture of the surgical neck of the humerus, with displacement outward of the upper fragment and displacement inward of the lower fragment. Union took place in this position and the use of the arm was almost completely lost. Mr. Pepper of St. Mary's Hospital deposed that the recognized treatment for fracture had not been adopted. A dislocation might have been reduced by Mr. Skryme, but the procedure would have been exceedingly dangerous. His opinion was that there was no dislocation. Mr. Rose of King's College Hospital and Mr. Battle of St. Thomas Hospital gave similar evidence. Mr. Skryme in his evidence said that he found both a fracture and a dislocation of the humerus and that he reduced the latter. It was impossible to put a pad in the arm pit to bring the bones into apposition because it would interfere with the circulation, and gangrene was threatened, as shown by a large hematoma. Mr. Lynn Thomas said that he found a fracture of the humerus and one-half inch of shortening. Mr. Skryme told him that he proposed to put the arm in a sling and to bandage the elbow to the side and put a pad in the armpit. With this treatment he agreed. He did not think that splints should have been used, and said that in a similar case he had seen the use of splints followed by amputation and death. He had no doubt from Mr. Skryme's description, he said, that there had been a dislocation. Mr. Bowlby of St. Bartholomew's Hospital deposed that the proper treatment had been adopted. He recognized three forms of fracture of the surgical neck of the humerus—impacted fracture with displacement of the shaft upward and outward, and fracture with, in addition to displacement of the shaft, displacement of the upper fragment outward. In the second form there is no difficulty in obtaining apposition and fair use of the arm is recovered. In the third form there is never complete recovery and the defendant's case, he declared, is an example of this form. Sir Frederick Treves also approved of the treatment. He said that in the Museum of the Royal College of Surgeons there are ten specimens of fracture of the surgical neck of the humerus with perfect union in only one; in five the union is fair, and the displacement moderate; in the other four the displacement is gross. In two of the cases the displacement, he said, is about the same as in the plaintiff's arm. Sir Frederick Treves agreed with Mr. Bowlby's classification. A poroplastic splint would not have been beneficial. With such displacement of the upper fragment as existed no control could have been obtained in any way. In cross examination he was asked should the patient have been kept in bed and said, "No." Then counsel read a passage from the "System of Surgery," edited by Sir Frederick Treves: "During the period of early swelling of injuries of the shoulder the patient should be kept in bed with the limb comfortably placed on a pillow." Asked did he agree with it, Sir Frederick Treves said that he did not write it, and that it was written twelve years ago and represented the teaching of the time. The introduction of the *x*-rays altered his views on the matter. Mr. Page of St. Mary's Hospital, Mr. Mansell Moullin of the London Hospital, Sir William Bennett, Mr. Edmund Owen, Mr. Arbuthnot Lane, and Mr. Edmund Owen also gave evidence approving of the treatment adopted. The judge, in summing up, threw doubt on Mr. Skryme's statement that he had diagnosed a fracture and did not think his explanation that he did not tell the patient there was a fracture because the latter was nervous was satisfactory. He thought that the most important point was that the defendants did not attempt to secure apposition of the bones and did not resort to an anesthetic for the purpose of facilitating reduction. Referring to the evidence given by the eminent surgeons for the defendants he said that they were perhaps unconsciously, and certainly honestly, influenced in favor of their professional brethren. The jury at first failed to come to an agreement; then they found a verdict for the plaintiff with $500 damages. The low amount of damages was evidently the result of the fact that the verdict was a compromise between the divergent views of the jurymen. Notice of appeal was given.

Regulation of the Use of Food Preservatives.

A conference on this subject was held at the Incorporated Institute of Hygiene. Professor Tunnicliffe, who presided, said that hygienists must not formulate ideal laws applicable to a utopia, but practical precepts suitable to society as it is. It is necessary that food should be delivered to the consumer in such a state that it will keep for a reasonable time. Of chemical preservatives alcohol and sugar, which are also foods, probably do not effect a chemical change in the food to be preserved. Whether common salt can be regarded as innocuous in quantity may be questioned. Saltpeter is not a normal constituent of the animal body, but is an active preservative, and he said that he dreaded to think what would happen in pickled and preserved foods of all kinds if its use were prohibited. Boracic acid, salicylic acid, sulphurous acid, formic aldehyd, and the fluorids have been in use about ten years, and the profession is thoroughly alive to them as a probable source of illness. Dr. Otto Helmer moved a resolution that definite regulations should be made as to the conditions under which the use of preservatives should be permitted, such regulations to enumerate all articles in which preservatives may or may not be used, the nature and quantity of the preservatives, and the conditions under which preserved articles should be sold. The resolution was carried and it was decided to send a copy to the president of the local government board.

VIENNA LETTER.

(From Our Regular Correspondent.)

The Fight Against Venereal Diseases.

VIENNA, Nov. 27, 1906.

The fight against venereal diseases has now entered on a more public and less hypocritical stage, as is shown by the fact that daily papers and medical corporations have now taken the matter into their hands, while hitherto it has been, more or less, a private philanthropic matter. Thus the Vienna "Gesellschaft der Aerzte" at its last meeting, November 16, with Professor Chrobak in the chair, discussed the subject. A committee consisting of the most prominent dermatologists and several other influential professors, has been selected in order to induce high standing men of public influence to coöperate with the profession in checking the progress of these diseases. In close relation to the question of the spreading of syphilis and gonorrhea, is the question of the unprotected woman, who is always exposed to the danger. The president remarked that legislation should take charge of these conditions; wilful sexual infection by man or woman should be made a punishable act. The two chief ways of restricting the constant spread of venereal diseases are by instructing the public and by warning the youth of both sexes. The young are especially prone to infection as they are ignorant of the danger. A very effective step has been taken by the senate of the Vienna Uni rsity. Every student matriculating at the university is handed a leaflet, containing in short, clear sentences the necessary information as to the nature of the venereal diseases, the chief symptoms, the course of the illness, its immediate and remote dangers and sequelæ, and the urgent admonition to restrict illegitimate sexual intercourse, and in case of disease to seek immediately competent medical help. The ethical responsibility of the man who knowingly infects his wife and endangers his children is set forth in well meant and well chosen words. Furthermore, clubs and friendly societies and also insurance companies no longer make venereal diseases a pretext for not paying the sick insurance money, so that patients affected with this disease are not prompted to hide their misfortune for fear of material loss. In the classes in the schools of technology qualified men and teachers have every week an opportunity to enlighten their hearers on the facts of the propagation of disease, especially the result of gonorrhea in the female which is responsible for so much misery among the poorer classes.

First Woman Physician Appointed to an Austrian Hospital.

Hitherto no woman could be appointed to hold the post of a junior or senior surgeon in the Austrian hospitals. Altogether there are less than eighty fully qualified medical women in the empire, and the majority are occupied in the southern provinces, in Bornia and the other formerly Turkish parts, where a large proportion of the population is still Mohammedan, or of Turkish descent. In Vienna itself, Mrs. Eva Weiss, M.D., is the first woman to reach the title of secundarzt or junior physician in the well-known Children's Hospital. The working men's club has now arranged for the wives of its members and for other women members, that two medical women are to look after the health of these people. The formal recognition of women's diplomas is regarded as a very important change in this rather conservative country and will undoubtedly open up a good field for the numerous hard working woman students.

Correspondence

Interstate Reciprocity and Frauds in Medical Schools.

SAN FRANCISCO, Nov. 19, 1906.

To the Editor:—In THE JOURNAL, Oct. 13, 1906, under the above heading, Dr. Dudley Tait makes reply to my former communication on that subject. Dr. Tait alleges that my communication contained "many grave accuracies." I wish to show that Dr. Tait is seriously mistaken concerning those "inaccuracies." I also wish to acknowledge my thanks to Dr. Dudley Tait for some of the information he has given concerning the matter under discussion.

1. I am happy to learn that "the requirements in California" are determined by the Association of American Medical Colleges. I, myself, had believed, and the belief is common among the profession of California, that such has not been the case, but that each meeting of the board brought out a crop of new "determinations." In the future the rulings of the board ought to be quite simple and plain.

2. The records of the College of Physicians and Surgeons show that H. R. Painton was entitled to credit for work done previous to his entrance in that school.

3. Mr. Painton did *not* teach school "during the two years preceding his graduation," but during the two years which correspond to the freshman and sophomore years of his course. During the two years preceding his graduation he was in constant attendance at the college, throughout the college year. To be explicit, he attended regularly and continuously the full junior and the full senior courses.

4. The work which Mr. Painton had done before entering medical school, together with the work of the summer courses and that which he did in the department of pharmacy, which course was given in part during the evening hours, enabled Mr. Painton to fulfill the requirements of the first two years. He passed all the regular examinations with the rest of his class. It certainly can not matter whether a man gets his education in the summer rather than in the winter, or whether he studies after 4 o'clock p. m., provided he attends bona fide instruction and masters his work. Dr. Dudley Tait's apparent stand in the matter would put a damper on all poor men who have to work their way through college. Dr. Painton did much of his first two years' work between 4 p. m. and 10 p. m. during the entire year, much of the pharmacy course being given during those hours. This will add a great deal to the time of Mr. Painton and will conflict in no way with his school teaching.

5. Dr. Tait may have consulted the college records last April, prior to the earthquake, as he has never been denied the privilege of consulting the records whenever he desired. He did not at any time say to Dr. Hodghead or to Dr. Anderson for what purpose he examined the records.

6. Careful inquiry at the district attorney's office fails to elicit the fact that Mr. Painton's case has been submitted to that office for opinion at all. The case could not be tried in the columns of THE JOURNAL anyway. I must request Dr. Dudley Tait to instruct the district attorney to proceed in the matter, or else to hold his peace.

7. I must also request Dr. Dudley Tait to do his duty as a member of the State Board and clear the "archives of the California board" of those "numerous similar instances of fraud on the part of the College of Physicians and Surgeons of San Francisco." It would be manifestly wrong to hoard up such information to bequeath to some future board. It would look worse for the board than for any one else. The college is ready at any time to meet any charges Dr. Tait wishes to make.

8. I am happy to know that "the records and minutes of the California board" are "open for public inspection." Before the records were burned I had been many times informed that they were very difficult records to inspect. At least the matter of obtaining the privilege of inspecting those records was a very difficult job. I am glad to know that they may be freely inspected. I am fairly familiar with the constitution of the Association of American Medical Colleges.

ETHAN H. SMITH.

The above letter was submitted to Dr. Tait, who replies as follows:

SAN FRANCISCO, Dec. 1, 1906.

To the Editor:—Convinced that the incident referred to by Dr. Ethan H. Smith of the College of Physicians and Surgeons, San Francisco, is of more than local interest, I beg to submit the following evidence:

Section 5 of the law regulating the practice of medicine in California contains the following: "In order to procure such certificate, he must produce satisfactory testimonials of good moral character and a diploma issued by some legally chartered medical school, the requirements of which medical school shall have been at the time of granting such diploma, in no particular less than those prescribed by the Association of American Medical Colleges for that year." Since 1896 the College of Physicians and Surgeons, San Francisco, has stated in its annual announcements that in granting advanced standing the requirements of the Association of American Colleges would be "strictly adhered" to.

EXTRACTS FROM PAINTON'S AFFIDAVIT.

I studied medicine for four calendar years, and was in actual attendance on lectures in the following named school, or schools, as follows:

First year at Col. of Phys. and Surg., Med. Dept., from September, 1902, to May, 1903.

Second year at Col. of Phys. and Surg., Med. Dept., from September, 1903, to May, 1904.

Third year at Col. of Phys. and Surg., Med. Dept., from September, 1904, to May, 1905.

Fourth year at Col. of Phys. and Surg., Med. Dept., from September, 1905, to May, 1906.

I was allowed the following credits on my medical course..... ..... and the said credits were granted upon the following credentials..... ....

It will be noted that in the above affidavit Painton makes no reference to or claim for credit for previous work.

CERTIFICATE OF THE SAN MATEO COUNTY SUPERINTENDENT OF SCHOOLS.

REDWOOD CITY, Cal., Oct. 9, 1906.

Dr. Dudley Tait, San Francisco:

Dear Sir:—The following is the information asked by you in reference to the terms taught by H. R. Painton in this county:

July 1, 1900-June 30, 1901, Pescadero District, 9 months, 18 days.
July 1, 1901-June 30, 1902, San Bruno District, 9 months, 8 days.
July 1, 1902-June 30, 1903, San Bruno District, 10 months,
July 1, 1903-June 30, 1904, San Bruno District, 10 months, 10 days.

E. M. TILTON,
County Supt. Schools.

On cross-examination by the chairman of the credential committee, Painton confessed having taught school during the two years of alleged attendance at the College of Physicians and Surgeons.

In the course of a recent interview between the credential committee of the Board of Examiners and a delegation from the College of Physicians and Surgeons, three professors of said college (Drs. F. W. Lux, J. M. Stowell and Francis Williams) stated positively that Painton had attended every part of the college course during June, July and August. On being shown the above certificate, the delegation made no response.

Pages 13 to 23 of the college announcements for 1902-3-4 specify in detail the work, lectures, recitations, quizzes, etc., covered by the autumn, winter and spring courses, and show that the only work done during the "summer quarter" related to practical and clinical courses. The College of Physicians and Surgeons is a day school.

One week after the rejection of Painton's diploma by the credential committee of the California board, Painton secured a license in the state of Nevada. This license was recently revoked by a unanimous vote of the Nevada board.

It is thus apparent that Dr. Ethan Smith was in total ignorance of both the state law and the college rules when he *believed* that "the requirements in California were determined by the Board of Examiners" and sought to justify the dean of the College of Physicians and Surgeons for having granted Painton "credit for work done previous to his entrance in that school."

It is true that no complaint has yet been filed against Pain-

ton with the district attorney of San Francisco, who, nevertheless, expressed the opinion to the board's attorney that Painton's act constitutes perjury, as defined in paragraph 118 of the Penal Code.

The office of the Board of Examiners being a state office, its records are necessarily public. In these records may be found official documentary evidence showing that the College of Physicians and Surgeons, San Francisco, graduated the holder of the degree of A.M., after little more than one complete, regular course (J. M. Stowell); granted one and even two years' credit to osteopathic licentiates (C. W. R. Radesky, Hilda Simons, E. B. Northey); admitted to the junior class students who had but recently failed in seven sophomore subjects at Cooper Medical College and graduated them two years later (C. S. Harris and Frederick Leach).

Is it necessary to delve deeper into the records of the California board in order to substantiate our assertions as to "the numerous similar instances" of fraudulent acts on the part of the College of Physicians and Surgeons, San Francisco? Can a college be classified among the reputable institutions when it wilfully and repeatedly violates its own published rules?

DUDLEY TAIT.

The One-Year Clause in Reciprocity.

CAMDEN, N. J., Dec. 21, 1906.

To the Editor:—The communication in THE JOURNAL, December 15, from Dr. George W. Webster, president of the Illinois State Board of Health, concerning the requirement that an applicant for the endorsement of a state medical license should have held the same for at least one year prior to its indorsement by a reciprocity state, is worthy of notice, both because Dr. Webster requests the *pros* and *cons* of the question and because of its interest to the profession. Dr. Webster states that after Jan. 1, 1907, the Illinois State Board of Health will not reciprocate with any state exacting this requirement. In this respect the Illinois State Board of Health has taken a proper stand.

When a medical licentiate of a state presents his original state license, earned on examination, with due certification thereto, and can substantially meet in all other respects the statutory requirements of the state to which he applies for endorsement, it is an illogical demand, a hardship to the applicant, and disrespectful, if not insulting to the state for a reciprocating state to insist on a year of practice by the applicant following licensure before endorsement will be granted, on the plea that immediate endorsement gives opportunity for charlatanism and quackery.

The one-year requirement in reciprocity is believed by its supporters to prevent the passing of charlatans from one state to another; but the requirement will not prevent this, because no time limit can be set for the making of a "roving charlatan" in the medical practice. Charlatanism is either innate or acquired; the latter usually through failure to succeed in the legitimate practice of medicine. It can best be prevented by rigorously exacting high moral and educational requirements for licensure, either through examination or endorsement, and this should not be overlooked, since all state medical examining boards must admit that the "roving charlatan" is frequently in evidence.

Interstate endorsement of medical license is an outgrowth of state medical examinations, and is largely a legal question in which the members of the profession have a personal interest. It should be placed on as high a plane as state medical examinations, and on as broad a basis as the educational standards of these examinations will permit, since all licentiates should stand on the same legal footing. When a state license is once earned through examination, it should be endorsed at any time without further examination by states of equal or lower requirements, on presentation of the proper credentials. To refuse to endorse the medical license of any state under such circumstances, or to refuse to endorse the license of a state of higher educational and examining requirements, as is the case with one of the eastern and one of the middle states, is an absurdity in these days of enlightened medicine.

In the reciprocal relations existing between New York, Illinois, New Jersey, and certain other states, an indorsement may be granted at any time after the applicant has received the degree of Doctor of Medicine and has presented acceptable educational credentials (both academic and medical) and certified evidence of moral character and of a state medical license issued after examination by a state requiring substantially the same standard of licensure.

The conditions of endorsement in New Jersey practically shut out the "roving charlatan" from licensure. Because of this, it seems proper to name the requirements of New Jersey for endorsement. Each applicant is required to furnish (a) a certificate of preliminary education approved by the State Superintendent of Public Instruction; (b) certification of his diploma from the medical school from which he was graduated, under the seal of the school; (c) a certified copy of his original state license under the seal of the examining board issuing the same; (d) a certificate of moral character duly signed by two physicians, or a medical society, of the locality in which the applicant resides; (e) a letter of recommendation from a physician in good standing in New Jersey; and (f) an affidavit from the applicant covering the above requirements. Only an original license earned through examination, from an approved state examining board, can be endorsed.

While New Jersey probably has its share of applicants from the "roving charlatan" class, its requirements for license reduce to a minimum the likelihood of their being permitted to practice.

E. L. B. GODFREY, M.D.,
Member State Board of Medical Examiners of New Jersey.

In a recent letter to THE JOURNAL anent the above subject, Dr. B. D. Harison, Detroit, secretary of the Michigan State Board of Registration in Medicine, advances further arguments in favor of the abolition of the one-year clause in reciprocity. Agreeing that Dr. Webster gives several good and sufficient reasons why the requirement of a year's reputable practice subsequent to licensing is unnecessary, he goes on to say: "The majority of students at graduation have not definitely settled on a location. They may go to this state or that state or remain in the state where they have completed their course, but one object they all have in view, the completion as soon as possible after receiving their medical degree, of the examination for license. The most convenient, the most practical and the least expensive place is in the state in which their college of graduation is located. The state board examinations are always arranged, covering time and place, to suit the convenience of the local colleges.

Subsequent to the obtaining of a state license, physicians are in a far better position to select a location and with very much less trouble, less time and expense. One trip only is necessary, in place of two or three trips to an outside state, and the usual delay attendant on an examination in another state is avoided. In comparison the double fee is the cheaper method. Then, again, where states, notably New York and Michigan, provide for a "primary" examination at the end of the second year, the requirement of a year's reputable practice subsequent to license, in the event of the graduate being obliged to go directly to another state, results in the applicant losing his credit and fee for work already completed and credited to him. In Michigan a very large percentage of students take the "primary," and are, therefore, especially affected by the one year requirement, and as it is more than probable that other states will, in the near future, adopt the method of dividing the examination, this one-year practice requirement, from this point of view, is a serious one.

At the meeting of the American Confederation of Reciprocating, Examining and Licensing Medical Boards held at Columbus, Ohio, April 25, 1906, the one year practice requirement was eliminated from Qualification 1, and the requirement of evidence of membership in a county, state or national medical organization was modified to "such evidence of good moral and professional character as may be demanded by state boards, and such evidence, at the discretion of either board, may include proof of membership in a recognized medical society, and such evidence may be considered in connection with the other evidence of character presented."

Medical News in the Daily Press.

CHICAGO, Dec. 24, 1906.

To the Editor:—In the foreign departments of the *Tribune* and the *Record-Herald*, Chicago, Sunday, December 23, appears a generous extract from the *Practitioner* of London, cabled to this country.

After reciting the threatened epidemic of influenza a number of medical authorities are quoted on the subject, several of whom refer to the death of the victim through heart failure, without any reference whatever to the most probable cause of this heart failure, namely, the promiscuous taking of acetanilid and other preparations.

Among other authorities quoted, Sir William Broadbent is reported as having found quinin to be the best remedy. His usual prescription is "one drachm of ammoniated quinin and two drachms of liquor ammonia acetatis every hour for three hours, and then every four hours" (sic). Many readers of the papers are already curious to know about ammoniated quinin and are making inquiries in the pharmacies. Of course there is no such thing, but some one will probably be taking quinin sulphate in one drachm doses every hour with serious results.

It seems that when the metropolitan newspapers can afford to have half column articles on such a subject by cable, they should at least be able to submit the same to some local medical authority in order that such "valuable" contributions may at least not do untold harm.

"Ammoniated quinin" should be the ammoniated tincture of quinin, which contains one grain of quinin sulphate to the fluidrachm in diluted alcohol with a little ammonia water, a preparation of the British Pharmacopeia. C. S. N. HALLBERG.

Dr. Taylor's Dressing After Hare-Lip Operation.

PORT HURON, MICH., Dec. 22, 1906.

To the Editor:—Under the above heading Dr. Alfred S. Taylor of New York City calls attention[1] to the use of strips of adhesive plaster crossed at a point above the nose, first used by him at the Vanderbilt clinic in 1901. He makes the statement: "So far as I know, it was an original idea."

Dr. William H. DeCamp of Grand Rapids, Mich., was the originator, I think, of this idea, and described the method in a paper read before the Michigan State Medical Society in 1886.[2]

I saw the method used two years later in one of the London, England, hospitals by one who had heard of Dr. DeCamp's method.

Dr. Taylor, nevertheless, should have the gratitude of the medical profession for again bringing this method to its attention, and especially for illustrating it, which is the most efficient way to cause its adoption.

It is an excellent device which should not be overlooked or forgotten. I can vouch for it by my own experience.

C. B. STOCKWELL.

The Venereal Peril.

DAVENPORT, IOWA, Dec. 24, 1906.

To the Editor: In referring favorably to the "Circular of Warning" recently issued by the Scott County, Iowa, Medical Society, you say: "It would be better if the German plan, to which we referred some time ago, were adopted and leaflets prepared separately for circulation among the two sexes."

Can this view be rationally sustained? As a graduate of a coeducational college I am firmly convinced of the underlying truth that each sex is greatly benefited by sharing the viewpoint of the other; and this, I believe, is especially true as to education in sexual matters. Each needs to know the dangers of license, not only to his own sex but to the other as well; and all the better if each knows that the other is informed. This is not to say, however, that the one circular, one book or one lecture should come to each in the presence of the other.

In other ways our circular might be greatly improved, no doubt. Indeed it has already been slightly revised in view of its possible adoption elsewhere. As to the advisability of separate leaflets we are open to conviction. C. H. PRESTON.

1. THE JOURNAL A. M. A., vol. xlvii, 1906, p. 2091.
2. Trans. Mich. State M. S., 1886, p. 186.

Pharmacology

Relations Between Druggists and Physicians in Baltimore.

The druggists of Baltimore have addressed a circular letter to the physicians of that city, calling attention to the promising signs of an increase of friendly relations between the two professions and emphasizing the need of coöperation. With the letter is enclosed a sample of an official douche powder, Pulv. antisepticus (N. F.), intended to be used in cases in which boric acid alone will not serve the purpose. It is inexpensive and can be obtained from any druggist in quantities to suit. In subsequent letters attention will be called to ungt. resorcini comp. (N. F.), elixir gentian. glycerinati (N. F.), and other preparations of the National Formulary and the United States Pharmacopeia, usually the ones selected being those that are offered to take the place of certain advertised proprietaries. Such movements as this promise much for the advance of pharmacy and the establishment of cordial relations between physicians and druggists. It is well recognized that pharmacy as a special branch of medicine has made great advances and the physician need not be ashamed to admit his ignorance of many things about drugs which he can profitably learn from the educated pharmacist.

Method of Introducing New Preparations.

The report of a case of poisoning by purgen (phenolphthalein) is the occasion for some pertinent observations by Dr. G. Brasch as to the proper introduction of such remedies to the medical profession (*Zeitschrift für Medizinalbeamte*, Abst. in *Apotheker-Zeitung*, No. 59, 1906). He agrees with Best that all such remedies should first receive a thorough trial in an institution subject to state supervision, before they are advertised to the medical profession, so that their harmlessness in appropriate doses may be ascertained by a method free from liability to error. The manner in which the manufacturers introduced purgen to the profession and to the laity is to be condemned, and probably led to the symptoms of poisoning exhibited in the case of Dr. Best and tends to discredit a remedy which is harmless and efficient if used in proper doses. The manufacturer of such a preparation is inclined, for obvious reasons, to put the dose of his preparation much too high. The most important point, however, is the objectionable character of the names given to such articles. The organic compound phenolphthalein has been known for a long time and has been widely used as an indicator. Accidentally it was discovered that phenolphthalein possessed laxative properties and thereon it was proposed (1901) as a medicine under the name "purgen." It is sold in tablets containing 0.05,01 and 0.5 grain phenolphthalein mixed with sugar and flavored with vanilla. The author says: "But it is very desirable—and I regard this as the most important part of my communication—that phenolphthalein should be received into the materia medica under its own name. The addition of vanilla and sugar and the designation as "purgen" by the manufacturers is to the highest degree superfluous and the arbitrary dosage in three strengths with the ridiculous designations 'baby,' 'for adults,' 'for patients confined to bed,' are merely calculated to prejudice the physician who is accustomed to individualize in his prescriptions, against a remedy which is in itself an excellent one." (See also Queries and Minor Notes, page 70.)

New Belgian Pharmacopeia.

Some of the peculiarities of the new edition of this work are described by Fl. Veeray, in the *Gazette med. Belge*, Oct. 25, 1906. Granules of active principles each containing 1 mgr. must be white and sugar coated. Granules may be prepared under another title and coated with silver. The pharmacopeia recognizes the chlorhydrate of morphin as the official salt of this alkaloid and directs that it shall be dispensed whenever the sulphate or acetate is prescribed. Similarly the nitrate of strychnin must be dispensed in place of the sulphate because the former is stable while the latter loses five molecules of water of crystallization on exposure to the air.

A formula is given for artificial Carlsbad salt which is identical with that given in the National Formulary under the

title "Sal Carolinum Factititum (1) N. F." Six grams of this powder dissolved in a liter of water give a mineral water similar to that of Carlsbad. It should be dissolved in warm water.

A formula for a purgative water similar to some of the popular aperient waters is given as follows:

Sulphate of magnesium	20 parts
Sulphate of sodium	20 parts
Chlorid of sodium	1 part
Bicarbonate of sodium	1 part
Boiled water	958 parts

The National Formulary.

The "Value of the National Formulary to the Retail Druggist" is the title of an article by C. S. N. Hallberg, in the Bulletin of the American Pharmaceutical Association, November, 1906. The origin of the National Formulary is briefly related and the fact is pointed out that its formulas are not primarily intended as substitutes for the various proprietary preparations, but are the outgrowth of medical necessities, and the result of pharmaceutical research. Reference to the history of any of the largely used proprietary remedies advertised to the physician at the present time will show that they were originated by pharmacists or physicians, and that the formulas have simply been appropriated by the makers of nostrums who, in many cases, have amassed fortunes from simple formulas which the pharmacist could have prepared equally well. Hallberg says:

> Thus, for instance, the antiseptic solution of coal tar came into use over half a century ago, at the time when a certain French pharmacist prepared the water solution of coaltar for surgical use. This preparation became known to Pasteur, the great French pharmacist, who was experimenting on how to prevent the phylloxera from destroying the grape vines which threatened the great wine-producing districts of France at that time. This preparation crossed the English channel under the name of liquor carbonis detergens, the coal tar being suspended in the watery mixture by means of the emulsifying properties of quillaja tincture.

The preparation is now included in the National Formulary under the title "Liquor picis alkalinus." Hallberg continues:

> Contemporaneously with this appeared the antiseptic solution extensively employed in England as Dobell's solution, which has also been contained in the National Formulary from the beginning under the name of liquor sodii boratis. From these were derived, respectively, the two great proprietary antiseptic solutions of the present day. Recognizing the disadvantages of phenol and mercuric chlorid, a gentleman engaged in the sundry-goods department of a wholesale drug house in St. Louis, had a formula constructed for him for an antiseptic solution which contained all the known antiseptics except the two "objectionable" ones just mentioned, and contained in addition, "the crystallized principles of mentha arvensis and thymus vulgaris," and, to make it somewhat mysterious, baptisia tinctoria. It was named after a great surgeon, Sir Joseph Lister, and it is said that the versatile namer of it stipulated that he received 10 per cent. royalty on the sale of the medicine. The preparation had an enormous sale, until two bright gentlemen in New York heard that an alkaline antiseptic solution would be preferred in minor surgical operations, especially involving mucus discharges, and therefore formulated a preparation similar to the well-known Dobell's solution by substituting for the phenol the more aromatic essential oils and in order to insure a generous salicylic content included all the three official methyl salicylates. That it should be no common solution that could be prepared by the ordinary pharmacist, it was given a characteristic distinct color through the use of the old time persionis. It is safe to say that several million dollars worth of these two solutions have been sold, affording equally enormous profits to the alleged discoverers, which were simple enough to prepare to be the work of pharmacists. It is equally safe to assert that all this profit has been taken out of the hands and pockets of the pharmacists, who, if they are not permitted to compound such simple solutions, have certainly lost both their art and their calling. Since in the course of events, these two preparations are now represented by liquor antisepticus of the U. S. P. and the liquor antisepticus alkalinus, N. F., respectively, it is hoped that there will be no excuse longer to patronize the proprietary medicines which have become well known as cure-alls for all the ills that affect man and beast, internally as well as externally.

Another feature of the secret proprietary is the fact that the formula can be changed without the knowledge of the physician and this has been done in a number of instances. A noted remedy advertised for the cure of rheumatism purports to contain a drug from the Fiji Islands which has not appeared in the territory of the United States for several years and is said to be omitted from the preparation according to the admissions of the manufacturer. But the name and the formula have not been changed. Too often the proprietaries are owned by laymen having no knowledge of medicine or pharmacy, and who have their preparations made for them.

The author notes that the American Medical Association will issue an epitome of the important preparations of the Pharmacopeia and of the National Formulary, and expresses the hope that this book will be in the hands of every physician.

Miscellany

The Anglo-American Medical Association in Berlin.—This association, which has been previously referred to,[1] issues as an annual report a small booklet setting forth the scope of the organization. As might be surmised the association exists in the interests of the many American and British physicians who go to Berlin to study. It gives advice and assistance regarding the postgraduate work, the clinics and the hospitals and also in the finding of comfortable quarters. Aside from its utilitarian value it becomes a bond of union and good fellowship between men speaking a common language and engaged in a common pursuit. Its headquarters are the Heidelberg Restaurant, Central Hotel Building, corner of Freidrich and Dorotheen Streets, at which place a number of American and British medical journals (including THE JOURNAL of the American Medical Association) are on file and where the association meets every Saturday evening. From the nature of the association its membership is transitory only and its permanent and efficient organization has been largely due to the interest manifested by its president, Dr. Honan. He was father of the association and has been its president since its inception. Residing permanently in Berlin he is peculiarly fitted to be of benefit to the members and he places his experience at the service of all. At each weekly meeting a lecture is given, the names of such men as Ewald, Hirschberg, Senator, Max Joseph and Hoffa being among those given in the program printed in the report. While it would be impracticable to give a complete list of all the medical courses given in Berlin, the following from the annual report may be of value:

UNIVERSITY COURSES.

These are the regular student courses at the Berlin University, but while a great many are very good, they are designed more for students than for postgraduate work. An occasional visit to these courses is usually welcomed without formality. To attend regularly one must matriculate at the university. (Fee 18 marks.) The university work is divided into a winter and a summer semester. The winter semester lasting from October 15 to March 15, and the summer semester from April 15 to August 15. The time for matriculation is comprised in the two weeks preceding the opening of the semester and the first two weeks of the semester. It may be mentioned here that credentials (diploma and passport) must be shown in order to matriculate.

FERIEN COURSES.

These are given twice a year (March and October) during the university holidays. These courses are for graduates in medicine and can be very highly recommended.

PRIVATE COURSES.

These comprise all the remaining courses given in Berlin. A certain limited number of courses are under the control of the Anglo-American Medical Association of Berlin, all applications for which should be made to the secretary of the association. When writing to the secretary a great deal of time and trouble will be saved by mentioning exactly the kind of work desired. With regard to the best time to come to Berlin the following information may be useful: In gynecology and obstetrics the best facilities for postgraduate work are to be had during the vacation periods, some courses being given only at these times. In all other branches, both clinical and laboratory, good work may be had all the year round.

PENSIONS.

Board with full pension (including light, heat, etc.), can be had from 100 to 200 marks (about $25 to $50) a month and single rooms with breakfast from 30 to 80 marks (about $7.50 to $20.). A list of well recommended pensions is to be found in the reference book of the association at the Heidelberg Restaurant.

GERMAN INSTRUCTION.

German lessons are to be had for from 1 to 3 three marks an hour. Among the list of instructors, also to be found in the reference book, are the names of medical men who make a specialty of teaching medical journal.

Any further information will be furnished by President J. H. Honan, Lutzow Strasse 78, Berlin W. The list of members includes 252 from the United States and Canada.

The Mosetig Filling to Prevent "Dead Spaces" After Operations.—Mosetig-Moorhof reports that his method of filling large bone cavities with a rapidly hardening mass containing iodoform has been proving satisfactory beyond all expectations in the experience of many surgeons. In a communication to the *Wien. klin. Wochschr.* for November 1, No. 44, he advocates

1. THE JOURNAL A. M. A., 1904, vol. xlii, pp. 320, 545.

the application of the same technic to fill up any nooks or crevices liable to remain as "dead spaces" after an operation. It fills the space air-tight while the action of the iodoform in the filling ensures continuous antisepsis. The space or cavity must be absolutely dry and aseptic. The filling used is a soft mass formed by mixing equal parts of spermaceti and oil of sesame, filtering and sterilizing in a water bath, and then pouring 60 gm. of the hot mixture into a large vial containing 40 gm. of finely pulverized iodoform, shaking constantly until the mass hardens. He applies to the mixture the term *Plombe*, which is the German word for filling for a tooth, and the term *Plombierung* has been generally accepted by American and English writers as the special descriptive term for the Mosetig process. Before using, the filling is heated to 50 C. and is then poured into the cavity to be filled, where it rapidly hardens. It becomes gradually absorbed and supplanted by granulations, but this occurs too slowly for iodoform intoxication to occur. The process of absorption can be watched with the *x*-rays. He has been using the method for more than five years and in more than a thousand cases, and the results have always been primary healing when the above conditions are fulfilled, while there is no sinking in of the parts from cicatricial retraction, so that the outcome from every point of view, he says, even the cosmetic, was the best conceivable. He gives a number of minor technical points that facilitate rapid work, such as hastening the drying of the cavity with compressed air, and filling one side of the space with the *Plombe*, allowing it to harden, and then filling the other side, utilizing the force of gravity. The filling promptly arrests any oozing of blood, as it is heavier than blood and forces itself into and plugs the crevices from which the blood is oozing. His previous communications have been duly summarized in THE JOURNAL as they appeared.

Lombroso's Criminal Museum.—Cesare Lombroso contributes an article on his museum to the *Archivos de Psiquiatria y Criminologia* of Buenos Ayres, June, 1906. He describes his first collection, made during his student days and kept in his room to the horror of his landlady, and later in a barn until finally installed in the biologic laboratory of the Turin university. He added materially to the collection during his term of military service and later by visits to abandoned tombs in different provinces, where the bag full of skulls on his shoulder was taken for a load of gourds. Friends contributed skulls from all parts of the globe, and he was especially fortunate in obtaining skulls of criminals and of the insane. In examining, in 1870, the head of a bandit sent from the Pavia prison he found the cerebellum and occipital fossa as excessively developed as those of the rodents, and this finding was the dawn of criminal anthropology. It suggested that all the phenomena of the congenital criminal, both somatic and psychic, correspond to the phenomena normal in inferior animals or peoples. Microscopic examination of the cortex of epileptics and criminals, he says, revealed a structure similar to that encountered in the inferior vertebrates and birds of prey. His assumption that criminality might be an equivalent of epilepsy was confirmed by his study of the skulls of epileptics. His collection includes many articles made and decorated by convicts in the penitentiary, reproducing in pottery, etc., their crimes with appropriate designs or remarks, the criminal tendency marked in all, and similar collections from the insane asylums. Some articles obtained from the heirs of a man who claimed the papal chair and was treated by the authorities as a dangerous conspirator, established his mental derangement beyond a doubt after a costly trial and his execution. Lombroso lingers over the various articles in his collection with affectionate detail, especially a model of the Philadelphia penitentiary with small wax figures to represent the inmates.

Doctors in Police Courts.

The *Record-Herald* (Chicago, Dec. 31, 1906) has this to say:

"The busy doctor, when called on to give testimony in the courts, and especially in the police courts, has a hard time of it everywhere. Judges are, however, usually cognizant of the sacrifices he must make, and do their best to make the performance of the important public duty of testifying as easy as possible. Here is an item from a London newspaper telling of an occurrence in a police court there a week or two ago, which is in point:

"'At North London, during the hearing of a case of alleged attempted suicide, a doctor was called as a witness. Mr. Fordham said he had noticed this gentleman in court all the morning, but was unaware of the fact that he was a doctor or he would have had the case called on early so as to have released him. He entertained a very strong opinion that doctors should not be kept from their practices longer than was absolutely necessary, and he had on previous occasions given directions that doctors in remand cases should not be asked to attend before 11:30 a. m. After inquiries as to who had in this case warned the doctor to attend earlier, the magistrate said he would write to the commissioner requesting him to issue an order that doctors should not be called on to give evidence—in his district—before 11:30 a. m.'

"In Chicago the courts are accustomed out of regard for the doctors to omit formal subpenas summoning them to appear at the hour of opening court, and instead to telephone them just long enough in advance to enable them to attend, give their testimony and get away with the minimum time lost. The London doctor was patient and long-suffering. He did not defy the court because service was inconvenient to him. And what is also significant, he did not lose anything in the end because of his regard for his public duty. It is worth noting that a fit of hysterics is not a necessary incident to the adjustment of an evil."

Insurance Fees and Lodge Practice

THE INSURANCE FEE QUESTION IN KENTUCKY.

By A. T. McCormack, M.D.
Secretary of the Kentucky State Medical Association.
BOWLING GREEN, KY.

THE BEGINNING OF THE EXAMINER'S FEE QUESTION IN KENTUCKY.

The fight to prevent the lowering of the already moderate fees for making examinations for life-insurance companies was begun—in Kentucky, at least—by the Muldraugh's Hill Life Insurance Examiners' Association at about the same time—probably as a result—of the outrageous reduction of fees by the New York Life in about 1896. This association was entirely independent of any other medical organization, but held its meetings on the same day with the session of the Muldraugh's Hill Medical Society. It included in its membership every doctor in the territory who was eligible to become a life-insurance examiner. Together they studied how to become better and more thorough examiners, and every member voluntarily pledged himself that under no circumstances would he accept a less fee for any complete examination than $5. Every reputable doctor in these five or six counties was soon a member of the new organization.

Now for results. The New York Life agents for the past ten years have written more insurance than those of any other company in Kentucky, but they have not written a policy nor had an examination made in the Muldraugh's Hill district. Other companies have written many thousands of dollars' worth of policies there. The Northwestern of Milwaukee and the Mutual Benefit of Newark, both always $5 companies, have two of their best producing agents there.

If this could be done by an active band of earnest men in five counties in Kentucky, why can it not be extended to every county in the United States? Let our 2,500 county societies act as a unit, and the insurance men who have been coining millions out of the common people largely through the labors of our profession will be brought to a realization of our value. Safeguards have been thrown about other departments by law. If we are protected we must protect ourselves. "United we stand, divided we fall."

THE PRESENT STATUS IN KENTUCKY.

On October 10, last, strong resolutions declaring that the minimum fee for life-insurance examinations in Kentucky on and after Jan. 1, 1907, should be $5, and explaining why, were passed unanimously by the State Medical Association. Within ten days this resolution was mailed to every practicing physician in the state, enclosed with a letter asking for his support, and an addressed postal for his reply. Up to this time 3,662 of the 4,126 legally registered physicians of the state have personally replied that they would make no insurance examinations for any company which em-

ploys incompetent examiners or which pays less than $5 for each complete examination. Of the less than 500 who have not replied directly, half at least have signed local agreements to the same effect in their own county. In 53 of our 119 counties every doctor in the county has signed a similar resolution at a formal meeting of the profession of his county; and in at least 30 other counties every doctor has signed the state agreement. Owing to the bad roads and winter weather it has been impossible as yet to get formal meetings within the few remaining counties, but we feel sure that within six weeks every doctor in Kentucky, not receiving a salary from an insurance company, will refuse to make examinations for less than the minimum fee of $5 established by the State Association.

The officers and members of our State Association are acting under the injunction of the preamble of our constitution, "to guard and foster the material interests of the physicians of the state." The House of Delegates, in considering the insurance fee resolutions, acted under the express provision of Chapter IV, Section 5, of the by-laws, which says: "It (the House of Delegates) shall consider and advise as to the material interests of the profession, and of the public, in these important matters wherein it is dependent on the profession." Our resolutions and the report of the national committee all expressly recommend that acceptance of them shall not be made a test of membership. Many county societies, and some state associations, have declared that any doctor continuing to examine for the companies which pay less than the established fee is guilty of dishonorable conduct. This is clearly within their rights, and surely the officers of the great insurance companies which have reduced the fee, who have been shown recreant to their trusts, are estopped from quoting our own rules to prevent us from protecting ourselves and our profession from their ravages.

Our State Association was familiar with the efforts of our national committee to effect a compromise on terms which were most favorable to the insurance companies, and it was their natural indignation at the rejection of a compromise, which many of them disapproved, by the great insurance trust, that caused their action and that has caused its unanimous endorsement. It was explained to our House of Delegates as, at this time, we were engaged in active warfare with the nostrum interests, and in perfecting our organization along other lines, and, at the same time, knowing that the insurance magnates and their employés were, or ought to be, busy correcting the abuses Mr. Hughes and his committee had discovered, our national committee felt that it was wise and would be acceptable to both interests to offer a compromise, probably exactly acceptable to neither, but which might afford a common ground for a present agreement, and which hereafter might be modified if necessary. The following was the original offer of our committee:

PROPOSITIONS OF INSURANCE COMPANIES.

1. If desired, through its councilor system, reaching every district in the United States, and embracing the leading members of the profession in 2,400 of the more important and populous of the 2,830 counties, the American Medical Association will assist the insurance companies in selecting only competent and morally responsible men as medical examiners.

2. County and other societies and postgraduate and other schools will be utilized for special courses in life-insurance work, involving both scientific and moral responsibility in medical examinations.

3. Fees for examinations will be restored to former standards after Jan. 1, 1907 (and that after that date medical examiners assume the duties and responsibilities, in so far as may be possible, heretofore performed by inspectors, without further compensation).

As every insurance company in existence now requires a report on the moral hazard of the risk, it was felt that the third clause added no duties to the examiners, but that it would relieve the insurance companies of a great and useless expense, *which is charged in their annual reports to "medical examinations."*

At the fall conference, mentioned in the committee's report, it went even further and offered to accept a fee of $3 for examinations of $1,000 or less, with a graded fee of $5 and upward for all examinations involving over $1,000. This was proposed by Dr. J. N. McCormack to meet and to test the insistent plea of the companies, which he did not believe was warranted, that the cut in fees for the examinations for small policies was an absolute necessity under the recent New York laws, as well as to ascertain their wilingness to make any concession in the interest of peace. This offer was rejected just as was the former one, these companies evidently acting in concert themselves, but without even the pretense of consistency, demanding that they should be left to deal only with the helpless individual examiner. The action of the Manhattan Insurance Company, also of New York (and of many other great companies of other states doing business there), in declining to reduce its fees, and announcing that it was not made necessary by the recent legislation in that state, only confirms the impression held by those best informed that this law was only taken advantage of to carry out a long concerted plan to do this injustice to our profession, heretofore defenseless because unorganized, and fully justifies our committee in smoking them out by the offer of a compromise more than fair to them.

All of these facts were presented to our state medical association, at the Owensboro meeting, and it was largely the rejection of the more than fair compromise offer by the insurance trust that caused so much righteous indignation among our members, and made it easy for us to secure the unanimous and enthusiastic support of the profession in almost every county in Kentucky.

Medical Societies and the Insurance Examination Fee Question.

The Las Vegas (N. M.) Medical Society unanimously adopted the following resolutions:

ANNUAL CONTRACT.

Resolved, That the Las Vegas Medical Society condemns as unprofessional the attendance on families, individuals or societies by annual contract.

LIFE INSURANCE.

Resolved, That after this date the fee charged by members of the Las Vegas Medical Society for medical examination of applicants for life insurance with old-line companies, shall be uniform and in no case less than $5.

The Clarksdale and Six Counties (Miss.) Medical Society took action December 5 and a strong effort was made by the secretary, Dr. James W. Gray, Jr., to have all reputable physicians within the jurisdiction of this society, sign them.

The Randolph County (Ark.) Medical Society adopted resolutions similar to those adopted by the Kentucky State Medical Association. Under date of December 22, Dr. H. L. Throgmorton writes:

> We think the late ruling of the old-line companies is unjust to the profession, as well as to the policy holders.

The Lenoir County (N. C.) Medical Society took action at its last meeting, held at Kinston, December 7. Secretary Dr. W. F. Hargrove writes that the following resolution was passed:

> No examination for old-line life insurance companies shall be made for less than five dollars, this sum to be paid by the insurance company regardless of urinalysis or of the amount of the policy.

At the regular meeting of the Mitchell District (S. Dak.) Medical Society, held September 4, similar action was taken and resolutions passed.

Book Notices

AMERICAN PRACTICE OF SURGERY. A Complete System of the Science and Art of Surgery by Representative Surgeons of the United States and Canada. Editors, J. D. Bryant, M.D., and A. H. Buck, M.D., New York City. Complete in Eight Volumes. Illustrated. Vol. 1. Cloth. Pp. 818. Price, $7.00. New York: William Wood & Co., 1906.

The first volume of this system is introduced with a chapter on "The Evolution of American Surgery." This contains a brief but interesting history of the lives, and numerous good likenesses, of the early surgeons of this country, who helped to make American surgery what it is to-day. The volume is subdivided into five parts: "Surgical Pathology," "Complications and Sequelæ," "General Surgical Diagnosis," "General Surgical Treatment," and "General Surgical Prognosis." Nothing shows so well the change in thought which modern methods of scientific research have brought about, than the present conception of the import of inflammation. From the old idea of its being a definite disease to the present idea as expressed on page 109, that "Inflammation is an exaggeration of normal body functions—a struggle for protection and self-preservation"—and that it is "essentially adaptive, protective and reparative"—is a great step forward. The chapter on "Disturbances of Nutrition" includes hypertrophy, atrophy, the various degenerations, infiltrations, necrobiosis and necrosis, ulceration and caries, hyperemia, congestion, altera-

tions of the blood and suppuration. Most of the topics are sufficiently well covered, others find but brief mention, for instance: "The Nature and Origin of Pus." "The Varieties of Pus." "The Forms of Suppuration" and "The Results of Suppuration" are all included in three pages of text.

In the chapter on "Tumors and Tumor Formations," we find the elaborate classification of Adami adopted. One is rather startled at first to read of "epihylomata," "mesolepidomata," etc., but when one learns that they are the same old tumors with but a new name, confidence is soon restored. The general characteristics and clinical features of the various tumors are well depicted and most of the illustrations are new and taken from the author's own collection. Separate chapters are devoted to the "Theories of Tumor Formation" and to the "Parasitical Relations of Cancer." The latter is an interesting exposition of the facts thus far brought to light, but nothing positive can yet be claimed by the exponents of this theory.

Part II on "Complications and Sequelæ," treats of wound infections, septicemia, pyemia, erysipelas and tetanus. Concerning the latter infection, the author, with wisdom, strongly recommends the prophylactic use of an approved antitetanic serum in all cases which experience has shown are particularly liable to inoculation with the tetanus germ. In the excellent chapter on "Surgical Shock," the very valuable experimental work of Crile is freely drawn on.

Part III on "General Surgical Diagnosis," takes up the subject of surgical diagnosis, including the examination of the body fluids and the use of the *x*-ray in a comprehensive and practical manner, such as has not heretofore been done in a work of this kind, while part IV takes up "General Surgical Treatment" in the same practical manner, and part V "General Surgical Prognosis."

The volume is well gotten up; the paper firm and heavy; the type large and readable, and the illustrations clear and well selected. If the other seven columes follow in the footsteps of the present one, the whole work can not help but be a most valuable one to all who are in any way concerned with the practice of surgery.

A TEXT-BOOK OF ELEMENTARY ANALYTICAL CHEMISTRY, Qualitative and Volumetric. By J. H. Long, M.S., Sc.D., Professor of Chemistry and Director of the Chemical Laboratories in the Northwestern University Medical School. Third edition, revised and enlarged. Cloth. Pp. 299. Price, $1.25 net. Philadelphia: P. Blakiston's Son & Co., 1906.

The author's long experience as a teacher and his reputation as a chemist are sufficient evidence that the contents of this book are well chosen to lay a broad foundation for the study of analytical chemistry. Of new matter contained in this third edition, the chapter on "Generalities on Reactions in Solution" is especially interesting. Here the author discusses in a clear, concise and non-technical way the influences which chemical equilibrium, solubility products, hydrolysis, etc., have on reactions. A short chapter on the theory of indicators has also been added. Here the modern theories for indicators are outlined, phenolphthalein and methyl-orange being used as illustrations.

In this connection, it should be stated that, although Professor Long teaches chemistry to students of medicine, the book is not written especially for medical students. Professor Long takes the ground that the elementary courses of chemistry given to medical students should not differ from those given in colleges, generally.

His textbooks of "Elementary Analytical Chemistry" and "Elements of General Chemistry" are not intended, therefore, for medical students as a class, but for students in general. The criticisms contained in the review of the latter book (THE JOURNAL A. M. A., Oct. 13, 1906, page 214), therefore, are not pertinent since they were based on the assumption that the book was written especially for medical students.

GREEN'S ENCYCLOPEDIA AND DICTIONARY OF MEDICINE AND SURGERY. Vols. I and II. AAC-BRA, BRE-EAR. Cloth. Pp. 538 and 528. Price, $5.00 per volume. London, England: William Green & Sons.

This work is at once a dictionary of medical terms and an encyclopedia of medical science. The encyclopedic articles are those of the "Encyclopedia Medica" brought down to date by the addition of bracketed paragraphs where recent advances in medical knowledge have rendered it necessary. These articles are written by some of the leaders of British medicine and must be accorded authoritative rank. The dictionary articles are mainly the work of the editor, J. W. Ballantyne, and consist of definitions of medical terms, cross references to the more extensive articles where the subject is treated in detail, or, in short articles descriptive of medicines, etc. Proprietary remedies are described briefly without reference to their manufacturers. The information thus given will be useful. If the other volumes maintain the grade set by these two the work will prove a useful addition to encyclopedias of medicine. The work is well printed and illustrated.

THIRTEENTH ANNUAL REPORT OF THE CRAIG COLONY FOR EPILEPTICS at Sonyea, N. Y. Adopted by the managers, Oct. 9, 1906. Paper. Pp. 106. 25 Illustrations.

This report is a well printed booklet of over 100 pages and is profusely illustrated, showing all sides of colony life. A special section is devoted to scientific papers and reports made up of articles contributed by members of the medical staff. The amount of surgical work done at Sonyea is evidently considerable as anesthetics were given 172 times during the year. The book describes also a modern hydrotherapeutic plant that has been installed and is proving a valuable feature in the treatment of certain types of epilepsy. Much information of a general character is given. The fact that the colony embraces 1,895 acres of land, with 76 houses and a population of about 1,300; the net per capita cost of keeping patients and a general description of life in the colony, all go to make instructive and interesting reading.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A new and Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the Kindred Branches, with their Pronunciation, Derivation, and Definition, including much collateral Information of an Encyclopedic Character. By W. A. N. Dorland, A.M., M.D. Fourth edition, revised and enlarged. Flexible Morocco. Pp. 836. Price, $4.50 net. Philadelphia: W. B. Saunders Company, 1906.

In this edition over 2,000 new words have been added and nearly all the tables have been amplified. Among the added illustrations are six colored plates showing appendicitis in various form; the Leishman-Donovan bodies; diphtheria of the lips and of the pharynx; Koplik's spots in measles and the appearance of the throat in that disease; and the kidney in various forms of nephritis.

STUDENT AIDS SERIES. Consisting of: Aids to Physiology. By P. T. B. Beale, F.R.C.S. Cloth. Pp. 239. Price, $1.25 net. Aids to Surgical Diagnosis, by H. W. Carson, F.R.C.S. Cloth. Pp. 140. Price, $1.00 net. Aids to Surgery. By J. Cunning, M.B., B.S., F.R.C.S. Cloth. Pp. 394. Price, $1.25 net. Aids to Chemistry. By T. A. Henry, D.Sc. Cloth. Pp. 316. Price, $1.25 net. Aids to Gynecology. By A. S. Gubb, M.D., M.R.C.S. Cloth. Pp. 136. Price, $1.00 net. Aids to Obstetrics. By S. Nall, B.A., M.B., D.P.H. Cloth. Pp. 145. Price, $1.00 net. New York: William Wood & Co.

This is not a new series, although new volumes have been added to it, such as those on surgery, physiology, surgical diagnosis and chemistry. The general value of the works previously issued has been maintained in the additions so that the series is valuable to those who are preparing for examinations.

Association News

Transactions of the Section on Pharmacology and Therapeutics

CHICAGO, DEC. 24, 1906.

To the Editor:—The publication of the papers presented to the Section at the last annual session is now nearly completed. Since the transactions are of unusual interest, comprising largely subjects pertaining to the investigation and reformation of the materia medica, the complete transactions will be found in a volume and offered to the members of the Association at $1.00 a copy, which is less than cost. Since it is necessary to know how many copies to print as soon as possible, every one desiring a copy is requested to advise the secretary and to remit at once.

C. S. N. HALLBERG, Secretary.

Marriages

JOHN R. HUDSON, M.D., to Miss Annie E. Slack, both of St. Louis, December 12.

JOHN T. RIESS, M.D., to Miss Mary T. Spitz, both of Baldwin, Ill., December 22.

DELL B. ALLEN, M.D., to Miss May A. Dixon, both of New York City, December 16.

R. RUTLEDGE COPELAND, M.D., to Miss Anabel Lee Jackson, at Baltimore, December 18.

JOHN F. MORSE, M.D., to JEAN WHITNEY, M.D., both of Battle Creek, Mich., December 19.

LEO E. SCHNEIDER, M.D., to Miss Lenore Hartnett, both of Oregon, Ill., in Chicago, December 2.

ARTHUR F. GODIN, M.D., Los Angeles, Cal., to Miss Blanche Kimball of Patton, Cal., December 12.

EDWARD CHRISTIAN WRIGHTSMAN, M.D., to Miss Anna Sand, both of South Chicago, Ill., December 25.

LOUIS P. RICH, M.D., Frederika, Iowa, to Miss Mildred Kempendorf, at Chicago, December 15.

ARTHUR BIRCH LOCKRIDGE, M.D., Montezuma, Ind., to Miss Edna Ames, at Greencastle, Ind., December 10.

WILLIAM W. VAN SCOYOC, M.D., Manchester, Kan., to Miss Geneva Hamilton of Clifton, Kan., December 12.

JAMES A. GENTRY, M.D., Narrows, Ala., to Miss Mary Jeanette Wyman, at Bridgeport, Ala., December 16.

WILLIAM BENNETT PALAMOUNTAIN, M.D., Colfax, Wash., to Miss Dorothea Dekan of San Francisco, December 12.

GEORGE W. TAPE, M.D., Arrowhead, Cal., to Miss Emma Langenhagen of Chicago, at Los Angeles, December 18.

EUGENE HOLT EASTMAN, M.D., Hot Springs, Ark., to Miss Leona Anderson Snyder of Dayton, Ohio, December 25.

JOHN NATHAN SIMPSON, M.D., Morgantown, W. Va., to Miss Grace Emily Donley of Waynesburg, Pa., December 20.

RUSSELL G. GORDANIER, M.D., Muir, Mich., to Miss Ivahletta Burnes of Wacousta, Mich., at St. John's Mich., December 12.

Deaths

E. Oliver Belt, M.D. University of Maryland School of Medicine, Baltimore, 1886; of Washington, D. C., a member of the American Medical Association, and Washington Society of Ophthalmologists and Otologists; professor of ophthalmology and otology in Howard University Medical Department and director of the eye and ear clinic in that institution; eye and ear surgeon of the Baltimore and Ohio railroad; surgeon to the Freedman's Hospital and secretary and surgeon to the Episcopal Eye, Ear and Throat Hospital, Washington; and consulting ophthalmologist and otologist to the Emergency Hospital, Frederick, Md., and to the Frederick City Hospital; one of the prominent specialists in his line, was instantly killed in a collision on the Baltimore & Ohio Railroad at Terra Cotta, D. C., three miles from Washington, December 30, aged 45.

William Harleston Huger, M.D. Medical College of the State of South Carolina, Charleston, 1849; who completed half a century of service as physician to the Orphan House, Charleston, in 1904; in charge of hospitals at James Island and in Charleston during the Civil War; for more than 25 years a member of the local board of health; one of the most esteemed practitioners of Charleston; died at his home in that city, December 17, after a prolonged illness, aged 80.

John C. Sanders, M.D. Western Reserve University, Medical Department, Cleveland, Ohio, 1847; of Cleveland, Ohio, formerly president of the national and state homeopathic medical societies; emeritus professor of obstetrics in the Cleveland University of Medicine and Surgery; died at Huron Road Hospital, Cleveland, December 22, two hours after a fall on an icy pavement, aged 81.

William Herbst, M.D. Jefferson Medical College, Philadelphia, 1855; eminent as a botanist; professor of botany in Muhlenburg College from 1874 to 1881; a member of the Royal Botanic Society of Germany; said to have been the oldest practicing physician in Lehigh County, Pa., died at his home in Trexlertown, December 22, aged 73.

Clark Leavitt, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1864; pension examiner at Newport, Ind., for more than thirty years; a member of the Vermilion County Medical Society since its organization; died at his home in Danville, Ill., December 19, after an illness of about six months, aged 73.

Walter Judson, M.D. College of Physicians and Surgeons in the City of New York, 1870; a member of the American Medical Association, and one of the most prominent practitioners of New Haven, Conn., died suddenly, December 24, in that city, from cerebral hemorrhage, while making a professional call, aged 87.

James Franklin Nolan, M.D. Kentucky School of Medicine, Louisville, 1886; local surgeon for the Erie Railroad, Huntington Division, at North Judson, while returning from a professional call and walking on the track near North Judson, December 21, was struck by a train and instantly killed, aged 50.

James Carson, M.D. Medical Department of the University of Iowa, at Keokuk, 1864; of Mount Vernon, Iowa, a member of the American Medical Association and a prominent practitioner of Linn County, died at St. Luke's Hospital, Cedar Rapids, from septicemia, December 18, aged 76.

Jeremiah R. Levan, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1861; medical director of the Fidelity Life Insurance Co., and a member of the Philadelphia County Medical Society, died suddenly at his home in Philadelphia, December 16, aged 70.

Mark M. Thompson, M.D. Chicago Homeopathic Medical College, 1886; a member of the American Institute of Homeopathy and a professor in a local college, was struck by a train, December 27, at Austin, Ill., and died a short time later, aged 51.

Thomas S. Mims, M.D. Medical College of the State of South Carolina, Charleston, 1840; one of the oldest practitioners of Screven County, Ga., died at his home in Mobley Pond, December 17, after an illness of several weeks, aged 86.

Berthold Trautman, M.D. University of Georgetown, Medical Department, Washington, D. C., 1874; of Germantown, Philadelphia, died at the Majestic Hotel, Philadelphia, where he was spending the winter, December 19, aged 62.

Samantha S. Nivison, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1866; for many years in charge of sanitaria at Dryden, N. Y., and Hammonton, N. J., died at her home in Hammonton, December 19, aged 73.

Herman Stein, M.D. University of Jena, Germany, 1849; a veteran of the Civil War; formerly of Deadwood, S. Dak., but for the last twelve years a resident of Chicago, died at his home, December 23, aged 80.

Barnet L. Bonar, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1880; for many years a practitioner of Washington, Pa., died at his home in Streator, Ill., December 22, aged 54.

James E. Wiley, M.D. Medical College of Alabama, Mobile, 1898; formerly assistant in the State Insane Hospital, Tuscaloosa, Ala., died suddenly at his home in Tuscumbia, Ala., December 19, aged 32.

Peter J. Doran, M.D. Baltimore University School of Medicine, 1891; of Baltimore, died from heart disease at St. Agnes Sanitarium in that city, December 21, after an illness of three years, aged 63.

Frank B. Robinson, M.D. Cooper Medical College, San Francisco, 1895; surgeon during the Spanish-American War, died at his home in San Francisco, December 19, from heart disease, aged 36.

Leverette W. Babcock, M.D. University of Vermont, Medical Department, 1869; speaker of the Minnesota House of Representatives in 1903, died at his home in Wadena, Minn., December 25.

Edward L. Strode, M.D. University of Maryland School of Medicine, Baltimore, 1889; died suddenly at his home in Swan Pond, Martinsburg, W. Va., December 19, from heart disease, aged 46.

W. T. Stovall, M.D. University of Louisville, Medical Department, 1852; one of the oldest and most esteemed practitioners of Mississippi, died at his home in Leland, December 5, aged 78.

Delavan W. Longstreet, M.D. Baltimore University School of Medicine, 1889; a practitioner of Lackawaxen, Pa., and Narrowsburg, N. Y., died at the latter place, December 12.

John Alexander (Examination, Ohio), a practitioner for fifty-seven years, died at his home in McConnellsville, Ohio, December 16, after an illness of several months, aged 87.

Francis E. Doughty, M.D. College of Physicians and Surgeons in the City of New York, 1869; died from pneumonia at his home in New York City, December 28, aged 59.

Alston Fuller, M.D. Jefferson Medical College, Philadelphia, 1866; a prominent physician of Randolph County, N. C., died at his home in Jones Mine, December 15, aged 75.

Abel C. Bingham (Years of Practice, Illinois) a practitioner of Harvard, Ill., for thirty years, died in Hahnemann Hospital, Chicago, December 6, from paralysis.

William Voorheis, M.D. Memphis Hospital (Tenn.) Medical College, 1882, died at his home in Memphis, December 22, from pneumonia, after a short illness, aged 57.

Frank B. Ryan, M.D. New York University, New York City, 1874, died at his home in Moravia, N. Y., December 18, a few days after an operation for appendicitis.

Karl G. Hebeler, M.D. University of Marburg, Germany, 1855; died at his home in Pittsburg, Pa., from pneumonia, December 23, after an illness of three weeks, aged 72.

James W. Mount, M.D. Penn Medical University, Philadelphia, 1880; died at his home in Kansas City, Mo., December 18, aged 68.

J. L. Pratt (Examination, Illinois) of Blue Mound, Ill., died recently at San Bernardino, Cal., aged 74.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

GERMAN MEDICAL DICTIONARIES.

BATH, NEW YORK, Dec. 15, 1906.

To the Editor:—Please recommend some good German-English, English-German medical dictionary. Did you publish something regarding this? If so, what date was it? C. HAASE, M.D.

ANSWER.—We referred to this subject at considerable length July 22, 1905, p. 253, and Dec. 16, 1905, p. 1896. Lang & Abrahams' new German-English medical dictionary, published by P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, 1905, for $4.00 is proving satisfactory, but in purchasing a medical dictionary for foreign terms John S. Billings' dictionary, which contains the medical terms in five languages in a single alphabetical sequence, will be found invaluable. Current medical literature contains so many French and Italian, as well as English, German and Latin, terms, that a dictionary with these five languages is none too compendious, and a reading knowledge of French is readily acquired. Billings' dictionary, the "National," is published by Lea Brothers & Co., 706 Sansom St., Philadelphia, for $12.

COMMISSIONS EIGHTY YEARS AGO.

Human nature seems to be the same in all ages, and there is nothing new under the sun. Some of us think that the division of the fee question is of recent origin; probably it is. The same may think also that receiving commissions from druggists is of recent origin, but in this they are mistaken. Under the heading, "Looking Backward," the London *Lancet* publishes a letter "To the Editor" which appeared in that paper Nov. 29, 1828. It is as follows:

"PERCENTAGE SYSTEM.

"*To the Editor* of the *Lancet*: Sir—An invalid suffering from the pernicious effects of adulterated drugs and ill-compounded medicines, for which the French pharmaciens are notorious, and feeling deeply for the interest and health of my fellow countrymen, I can not forbear directing your and their attention to a system of combination between certain British physicians and French pharmaciens in Paris, which is now carried to such a scandalous and mischievous pitch, that it has drawn on the offenders the ironical animadversion of the *Parisian Press*.

"The following is copied from the *Corsaire*: 'A Medical paper called the *Hygie*, recently gave a letter from the pharmacien Beral, Rue de la Paix, to Dr. Ch-s-de, who had just arrived from London, for the purpose of initiating him into certain customs which he calls French and which consist of the pharmacien engaging the doctor to send all his prescriptions to him; the pharmacien consenting to pay the officious doctor a reasonable sum. All this may be true, but it is long since the English physicians, Morg.-Tup, and Mac-g-lin, bargained with the pharmacien Beral; and the *Hygie* is wrong in saying that these lucrative arrangements began with the French, for everybody knows that *in commercial affairs the English always* take the lead.'

"An English journal, published in Paris, contains the following: 'The English nobility and gentry are most respectfully informed that a Pharmacy will shortly be opened, quite in the English manner; physicians supporting this establishment will receive as liberal a *percentage* as at any other Pharmacy. N. B. Each prescription will be numbered, and the doctors paid at the end of every month.'

"'Tis true, 'tis pity;
And pity 'tis 'tis true.'

"AN ENEMY TO THE PERCENTAGE SYSTEM."

PHYSIOLOGIC ACTION OF PHENOLPHTHALEIN.

DR. C. H. WOOD, Vallejo, Cal., writes: Kindly inform me where I can obtain information (in English) regarding the precise physiologic action of phenolphthalein.

ANSWER.—The literature on the physiologic action of phenolphthalein is scanty. By referring to THE JOURNAL'S Guide to Current Medical Literature we fine one article on this subject by F. W. Tunnicliffe in the *British Medical Journal*, Oct. 18, 1902. The conclusions reached by the author of this article are that the drug is a useful aperient, without irritating action on the kidneys and capable of acting in jaundice; its depressant action on the circulation is less than that of magnesium sulphate. The dose for children is from ¾ to 2¼ grains, for adults from 1½ to 4½ grains, increased to 15 grains in cases of obstinate constipation. It may be given either in capsule or pill form. The drug seems to have no other action. The British Extra Pharmacopeia give substantially the same facts. Phenolphthalein is a crystalline substance produced by the interaction of phenol and phthalic anhydrid, being soluble in alcohol in the proportion 1:10, and in water, 1:600. The substance is also on the market under the name of "purgen," and a recent report of a case of poisoning by this preparation is noted in the Pharmacology Department under the caption "Method of Introducing New Preparations."

CANCER HELD TO BE NON-PARASITIC.

McKEESPORT, PA.,

To the Editor:—In THE JOURNAL of April 28, 1906, p. 1255, Professor Nicholas Senn states that carcinoma is non-parasitic in origin and proves it by inoculating his own forearm with a malignant graft taken from an advanced carcinoma from the lip of a patient. An article recently appeared in numerous papers in the country, emanating from Chicago, under date of December 6, purporting to be from a lecture by Dr. Senn before the students at the University of Chicago in which he presented a series of conclusions, among which is this statement: "Cancer is a parasitic disease." Presuming this newspaper article to be correct, how can Professor Senn reconcile these two statements made within the year 1906?

D. C. HUFFMAN.

ANSWER.—This query was referred to Dr. Nicholas Senn, who replies as follows: "In my lectures and in all my writings I have always maintained that cancer is a non-parasitic disease and you may so state in THE JOURNAL in reply to the enclosure. The error lies in the failure of the report in the daily press to be correct."

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Dec. 29, 1906:

Billingslea, C. C., asst.-surgeon, left Fort Meyer, Va., on 7 days' leave of absence.

Hall, James F., asst.-surgeon, granted leave of absence for one month.

Heard, George P., asst.-surg., granted leave of absence for one month, with permission to apply for an extension of three months.

Newgarden, George J., surgeon, order for duty at Fort D. A. Russell, Wyo., suspended, ordered to Army General Hospital, Washington Barracks, D. C., for observation and treatment.

Havard, Valery, asst.-surgeon-general, relieved from duty as chief surgeon, Army of Cuban Pacification, and ordered to return to his duties in the office of the surgeon-general of the Army.

Taylor, Blair D., deputy surgeon-general, now at Havana, Cuba, ordered to duty as chief surgeon, Army of Cuban Pacification.

McCulloch, Champe C., Jr., surgeon, relieved from duty at Fort Meade, S. Dak., and ordered to Washington, D. C., to report to the Isthmian Canal Commission for duty on the Isthmus of Panama.

Carter, William F., surgeon, returned to Fort Monroe, Va., from leave of absence.

Whitmore, Eugene R., asst.-surgeon, returned to Fort Jay, N. Y., from temporary duty at Fort Slocum, N. Y.

Holmes, Thomas G., contract surgeon, left Fort Wayne, Mich., on leave of absence.

Van Kirk, Harry H., contract surgeon, left Fort Logan, Colo., for temporary duty at Fort Wingate, N. M.

Wall, Francis M., contract surgeon, returned to Fort Oglethorpe, Ga., from leave of absence for two months.

Brooks, John D., contract surgeon, left Fort Meade, S. Dak., on leave of absence for one month.

Johnson, Charles W., contract surgeon, left Fort Des Moines, Iowa, on leave of absence for three months.

Burkart, John L., contract surgeon, arrived at Fort Wayne, Mich., from leave of absence.

Tasker, Arthur N., contract surgeon, granted leave of absence for nine days.

Cullen, Charles W., contract surgeon, granted leave of absence for nine days.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending Dec. 29, 1906:

Lumsden, G. P., medical inspector, commissioned medical inspector, with rank of commander from Sept. 6, 1906.

Pugh, W. S., P. A. surgeon, Jr., commissioned P. A. surgeon, with rank of lieutenant, from Sept. 23, 1906.

Taylor, E. C., Campbell, F. E., Gill, J. E., Reeves, I. S. K., Jr., P. A. surgeons, commissioned P. A. surgeons, with rank of lieutenant, from Oct. 12, 1906.

Means, C. V. B., surgeon, detached from the Navy Yard, Mare Island, Cal., and discharged from treatment at the Naval Hospital at that yard, and ordered to the Army and Navy General Hospital, Hot Springs, Ark., for treatment.

Moore, J. M., surgeon, detached from the *Indiana* and ordered home.

Bertolette, D. N., medical director, detached from duty in command of the Naval Medical Supply Depot, Navy Yard, New York, N. Y., January 8, discharged from treatment at the Naval Hospital at that place, and ordered home to wait orders.

Fitzsimons, P., medical director, detached from the Navy Yard, Washington, D. C., and ordered to command in the Naval Medical Supply Depot, Navy Yard, N. Y., January 8.

Percy, H. T., surgeon, ordered to the Navy Yard, Washington, D. C., January 3.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Dec. 26, 1906:

Pettus, W. J., asst.-surgeon-general, granted leave of absence for one day, December 26.

Wertenbaker, C. P., surgeon, relieved from duty at St. John, N. B., effective December 31, and directed to assume command of the service at Norfolk, Va. Leave of absence for three months from Dec. 1, 1906, amended to read for one month.

Blue, Rupert, P. A. surgeon, relieved from duty at Norfolk, Va., to take effect Dec. 31, 1906.

Billings, W. C., P. A. surgeon, granted leave of absence for two days, December 28 and 29.

Earle, B. H., P. A. surgeon, granted leave of absence for ten days from December 24.

Lloyd, B. J., P. A. surgeon, granted leave of absence for ten days.

Boggess, J. S., asst.-surgeon, granted leave of absence for three days from Dec. 21, 1906, under Paragraph 191 of the Regulations.

Ashford, F. A., asst.-surgeon, directed to rejoin his station at Ellis Island, N. Y., Dec. 21, 1906.

Keatley, H. W., acting asst.-surgeon, granted leave of absence for thirty days on account of sickness, beginning Nov. 19, 1906.

Schwartz, L., acting asst.-surgeon, granted leave of absence for seven days from Dec. 17, 1906, under Paragraph 210 of the Regulations.

Hall, L. P., pharmacist, granted leave of absence for seven days from Dec. 24, 1906, under Paragraph 210 of the Regulations.

APPOINTMENTS.

Dr. M. Claude Terry was transferred from the Insular Service and appointed an acting assistant surgeon in the Public Health and Marine-Hospital Service for duty at San Francisco Quarantine Station, Dec. 26, 1906.

Dr. John O. Rush was appointed a temporary acting asst.-surgeon in the Public Health and Marine Hospital Service for duty at Mobile, Ala., Dec. 26, 1906.

BOARD CONVENED.

A board of officers was convened to meet at Portland, Me., on Dec. 20, 1906, for the purpose of examining Pharmacist C. H. Bierman to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the Board: Surgeon W. P. McIntosh, chairman; Acting Asst.-Surgeon A. F. Stuart, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service during the week ended December 21, 1906:

SMALLPOX—UNITED STATES.

Georgia: Augusta, Nov. 27-Dec. 10, 16 cases.
Illinois: Chicago, Dec. 9-15, 1 case; Galesburg, Dec. 2-8, 13 cases.
Indiana: Indianapolis, Dec. 3-9, 1 case; South Bend, Dec. 2-8, 3 cases.
Kansas: Topeka, Dec. 2-8, 1 case.
Louisiana: New Orleans, Dec. 2-8, 1 case.
Minnesota: Fourteen counties, Nov. 12-Dec. 10, 56 cases.
Montana: Two counties, Nov. 1-30, 2 cases.
Missouri: St. Joseph, Oct. 26-Dec. 8, 3 cases; St. Louis, Dec. 1-8, 1 case.
Nebraska: Omaha, Nov. 15-21, 1 case.
New York: New York, Nov. 2-Dec. 15, 18 cases.
North Carolina: Three counties, Oct. 1-31, 29 cases.
Ohio: Toledo, Dec. 2-8, 3 cases.
Washington: Spokane, Dec. 4-10, 2 cases.
Wisconsin: Milwaukee, Oct. 2-8, 63 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, Oct. 27-Nov. 3, 5 cases.
Brazil: Bahia, Oct. 28-Nov. 10, 15 cases; Pernambuco, Oct. 16-30, 15 deaths; Rio de Janeiro, Nov. 6-10, 3 cases.
Chile: Iquique, Nov. 6-10, present.
Great Britain: Hull, Nov. 18-24, 3 cases; Manchester, Nov. 18-24, 1 case.
India: Calcutta, Oct. 28-Nov. 3, 1 case.
Russia: Odessa, Nov. 18-24, 2 cases, 1 death; St. Petersburg, Nov. 17-23, 20 cases, 1 death.
Turkey: Beirut, Nov. 24, present.

CHOLERA—INSULAR.

Philippine Islands: Manila, Oct. 13-Nov. 17, 349 cases, 115 deaths; Provinces, 1,037 cases, 730 deaths.

CHOLERA—FOREIGN.

India: Bombay, Nov. 14-20, 17 deaths; Calcutta, Oct. 28-Nov. 10, 104 deaths.

YELLOW FEVER.

Cuba: Marianao, Dec. 15, 1 case.
Mexico: Vera Cruz, Nov. 17-Dec. 1, 3 cases, 2 deaths.

PLAGUE.

Brazil: Bahia, Oct. 28-Nov. 10, 5 cases, 1 death; Pernambuco, Oct. 16-31, 4 deaths; Rio de Janeiro, Nov. 4-10, 34 cases, 12 deaths.
Peru: Catacaos, Nov. 3, 1 case; Mollendo, 1 case; Trujillo, Nov. 1-6, 1 case.

Week Ended Dec. 28, 1906.

SMALLPOX—UNITED STATES.

District of Columbia: Washington, Dec. 9-15, 1 case, 1 death.
Georgia: Augusta, Dec. 11-17, 1 case.
Illinois: Galesburg, Dec. 9-15, 7 cases.
Indiana: Indianapolis, Dec. 10-16, 3 cases.
Minnesota: Fourteen counties, Nov. 12-Dec. 10, 56 cases.
Missouri: St. Joseph, Dec. 9-15, 3 cases.
New York: New York, Dec. 9-15, 5 cases.
North Carolina: Greensborough, Dec. 9-15, 7 cases.
Oregon: Umatilla County, Nov. 1-30, 1 case.
Virginia: Norfolk, Dec. 17, 2 cases, in Craney Island Hospital; Richmond, Dec. 11-17, present.
Washington: Spokane, Dec. 9-15, 3 cases.
Wisconsin: La Crosse, Dec. 9-15, 1 case; Appleton, 2 cases; Milwaukee, 29 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, Nov. 18-24, 6 cases.
Brazil: Bahia, Nov. 18-24, 11 cases.
China: Chefoo, Nov. 4-10, 1 case, on S. S. *Raleigh*.
France: Marseilles, Nov. 1-30, 50 deaths; Paris, Nov. 25-Dec. 1, 12 cases.
Gibraltar: Dec. 3-9, 3 cases.
Greece: Athens, Nov. 18-24, 1 death.
Malta: Valetta, Nov. 18-24, 1 case.
Russia: Odessa, Nov. 25-Dec. 1, 7 cases; St. Petersburg, Nov. 18-24, 4 cases, 2 deaths.

CHOLERA—FOREIGN.

India: Bombay, Nov. 14-27, 17 deaths; Calcutta, Nov. 3-10, 66 deaths; Rangoon, Nov. 11-17, 6 deaths.

YELLOW FEVER—FOREIGN.

Cuba: Cardenas, Dec. 22, 1 case; Habana, Dec. 22-27, 1 case, on German S. S. *Kronprinzessin Cecil*, from Vera Cruz.
Mexico: Vera Cruz, Dec. 2-8, 1 case, 1 death.

PLAGUE FOREIGN.

Brazil: Bahia, Nov. 11-24, 8 cases, 4 deaths.
India: Bombay, Dec. 14-20, 12 deaths.
Japan: Osaka, Nov. 14-20, 2 cases; Matsuyama, 1 case.
Russia: Transbaikal Province, Nov. 4-10, 1 case, 1 death.

Society Proceedings

COMING MEETING.

Med. Society of State of New York, Albany, Jan. 29, 1907.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, held at Baltimore, Dec. 11-13, 1906.

The President, DR. GEORGE H. NOBLE, Atlanta, Ga., in the Chair.

After the transaction of some routine business, the reading of papers was begun.

Sulphate of Spartein in Surgical Practice.

DR. STUART MCGUIRE, Richmond Va., said that he believes he has acidentally discovered in sulphate of spartein a valuable remedy for the prevention and treatment of postoperative suppression of urine. In the last five years he has lost many patients from this cause, despite the almost routine use of chloroform as an anesthetic. The cases have usually been those with pre-existing nephritis from sepsis or cholemia. Shock has not apparently been a factor, as the condition would not develop for twenty-four or thirty-six hours. A patient operated on for retention of urine or for jaundice due to obstruction of the common duct would do well for one or two days, and then would become restless, listless, would develop a stupor which would rapidly deepen into coma, and die with all the symptoms characteristic of uremia. In the treatment of this condition, Dr. McGuire has tried giving water by mouth, under the skin, and in the rectum; hot packs and vapor baths; cups and counter-irritants; strychnia, digitalis and nitroglycerin; calomel and saline purgatives; and in one case stripping the kidney capsules, with uniformly bad results. Two years ago he began empirically the use of sulphate of spartein, and now has a record of six cases in which he is sure the drug was the means of saving the patient's life. Its therapeutic effect is to increase the blood

pressure, make the pulse slower and stronger, and act as a powerful diuretic. Its action is manifest in thirty minutes after administration, and lasts for from four to six hours. To get results it must be given hypodermically in from one to two grains, repeated every three to six hours. Its use should not be delayed until suppression of urine exists; it should be prescribed as a prophylactic as well as a curative agent. Dr. McGuire does not claim that it is a specific, or that it should be employed to the exclusion of other measures, such as purgatives, transfusions, and hot packs. He does believe, however, from actual experience, that it is preferable to the drugs of the digitalis type in rapidity of action, ease of administration, and efficiency of results.

DISCUSSION.

DR. WILLIAM PERRIN NICOLSON, Atlanta, Ga., has used sulphate of spartein in a similar way as a heart tonic. He prefers it to digitalis. Therapeutically it combines the virtues of being a powerful heart tonic and of dilating the capillaries. An important point is to give it in large doses—say two grains. He mentioned one case in which suppression of urine lasted for forty-seven hours, but the patient finally recovered.

Comparative Advantages and Disadvantages of Hysterectomy and Removal of the Body of the Uterus.

DR. J. WESLEY BOVÉE, Washington, D. C., said that an important proportion of cases of tumors thought to be simple fibromata or myomata have in reality taken on malignant degeneration or are complicated by malignant degeneration of the corporeal endometrium. Carcinoma of the cervix has been detected within a few days after removal of the body of the uterus, showing clearly that it existed at the time of the supravaginal amputation. In some cases fibromata have existed for years, the patients declining operation, and cancer of the cervix developed subsequently, with fatal result. Bovée has seen two such cases. It has not been proved, he said, that cancer of the cervix occurs more frequently with uterine fibroids than without them. On the other hand statistical tables on the complications of fibroids demonstrate the remarkable increase in the frequency of cancer of the body of the uterus accompanying these growths. Even by the abdominal route complete extirpation of the uterus is not an operation that necessarily taxes the patient's vitality to an extent appreciably greater than removal of the body alone. Objections to the removal of the cervix with the body because of weakening of the vaginal roof and shortening the vagina are practically nullified by suturing the round and broad ligaments to the vaginal walls. The comparative ease of the amputation is of moment only in critical cases. The cosmetic effect to young women deserves more consideration. Often retention of the portio vaginalis is deemed by them to be of great value. In a young woman without a family history of malignant disease and in the absence of uterine growths the cervix should not be removed if the body is to be removed by the abdominal route. In very critical cases in which the body of the uterus is to be removed, even in the presence of tumors, it will occasionally be advisable not to remove the cervix. In practically all other cases the cervix should not be saved, especially in old women, particularly if evidence of uterine growths be present.

DISCUSSION.

DR. I. S. STONE, Washington, D. C., declared that he has never regretted having left the cervix. So far as malignant disease is concerned, it has been his good fortune by subsequent operations to save two patients who had what is called subtotal hysterectomy done, the stump was subsequently found to be malignant and operation was done. One of these cases was sarcoma. He believes that a large number of surgeons are well satisfied with the mortality of the Baer operation, of leaving the stump.

DR. HENRY T. BYFORD, Chicago, said that no cut and dried rule could be laid down to take out the cervix in this class of cases. One would not think of taking out the cervix in a young woman unless there is malignant disease. Even in an old woman it is a dangerous procedure, and one attended with great difficulty. The cervix, he declared, should not be removed unless there are good reasons for so doing.

DR. MAURICE H. RICHARDSON, Boston, recalled but one instance in which cancer of the cervix developed after supravaginal amputation for fibroids. While he has not looked up his records, he should say that cancer of the cervix is very rare after such operations.

DR. HERMAN J. BOLDT, New York, said that malignant disease in the cervix after supravaginal hysterectomy does occur. He does not believe, however, that if the cervix is left it is a causal factor in the production of malignant disease. He does not consider that the relative risk between supravaginal amputation and panhysterectomy is of importance. One who is accustomed to doing pelvic surgery can do one operation as quickly as the other. The subsequent condition of the vaginal vault is the principal point. In the majority of instances, it makes no difference whether there is a good vaginal vault following supravaginal amputation, or whether there is a vaginal vault with more or less cicatricial tissue in it, but occasionally it does make a difference. Dr. Boldt has seen patients become markedly neurasthenic as the result of scar tissue in the vaginal vault, and he does not consider it desirable to do a panhysterectomy when the cervix is in a fairly normal position. When the vaginal portion of the cervix is diseased, the vagina torn and the cervix eroded, he believes the cervix ought to be removed, but otherwise he thinks that it is just as well to leave it because it makes a better pelvic floor.

DR. ROBERT S. HILL, Montgomery, Alabama, said that there are as potent reasons for leaving the cervix in some cases as there are in others for removing it. Removal of the cervix weakens the pelvic diaphragm, and therefore postoperative vaginal hernia is more likely to occur. The verdict of the majority of the profession is that panhysterectomy is an operation of greater magnitude than supravaginal amputation of the uterus, when we consider the increased traumatism of the parts, the increased liability to injury of the rectum and bladder, and the increased chance of interfering with the ureters through cicatricial tissue, as well as the increased chance of infection by entering the vagina. He did not agree with the statement that panhysterectomy as an operation is of no greater magnitude than is supravaginal amputation of the uterus. This may be true in the hands of the most expert hysterectomists, but we must consider the ability of the average surgeon, and not of the men of superior skill in the performance of hysterectomy. From this standpoint, Dr. Hill thinks that supravaginal amputation of the uterus still has a place among legitimate surgical procedures.

Election of Officers.

The following officers were elected for the ensuing year: President, Dr. Howard A. Kelly, Baltimore; vice-presidents, Drs. R. E. Fort, Nashville, Tenn., and Hubert A. Royster, Raleigh, N. C.; secretary, Dr. W. D. Haggard, Nashville, Tenn., (re-elected); treasurer, Dr. Charles M. Rosser, Dallas, Tex. (re-elected).

New Orleans was selected as the place for holding the next meeting, Nov. 12-14, 1907.

(To be continued.)

NORFOLK DISTRICT MEDICAL SOCIETY.

Regular Meeting, held at Roxbury, Mass., Nov. 27, 1906.

The President, DR. SAMUEL CROWELL, in the Chair.

Dispensary and Outpatient Work Among the Tuberculous Poor.

DR. H. F. R. WATTS said that special clinics for ambulatory cases are now maintained in most large cities. The one at the Boston Dispensary was started in 1899. Here the patient is a unit in the social system, and his life, habits and environment must be studied. His physical, moral and financial assets must be noted by the physician at the clinic and by the nurse who visits his home. Thus a much more intimate relation between doctor and patient is established than is usual in any other class of cases. The average patient appreciates this and coöperates cordially. He is given special directions as to personal hygiene, and his manner of life, the whole being embodied in a sheet of printed directions. He takes with him a supply of paper napkins to receive his sputum, and impervi-

ous bags in which the contaminated napkins can be put and the whole burned. Most important of all, he is visited in his home by the nurse. She watches the patient, gets him to return to the physician regularly, supplies him with food, etc. Most of these cases are in the thickly settled tenement districts of Boston, the South Cove, West End and lower South Boston. Almost none are reported from the Back Bay.

Other charitable organizations help, notably the Associated Charities, in securing the funds needed to board such patients at Rutland. Diet kitchens furnish food for many of them. Success, however, depends in a large degree on the intelligence of the patient.

District Nursing of Tuberculosis Patients.

MISS M. A. GALLAGHER stated that four years ago this work was begun by the Instructive District Nursing Association, coöperating with the Boston Dispensary and the out-patient departments of the Boston City Hospital and the Massachusetts General Hospital. Last March it was made a separate department of the work. Since that time Miss Gallagher has looked after 60 to 75 patients all the time, receiving 20 to 50 new cases each month. These are all within the city limits of Boston. Help in regular nursing is given by the district nurse. Often she assists in placing a patient in a hospital, only to have him returned later to even worse surroundings than those from which he was rescued. She is not allowed, however, to follow up cases not connected with one of these three clinics. At her house visits she notes carefully the personal hygiene and habits of the patient, especially what he does with his sputum, his general appearance and all the details of his surroundings. These, with many other facts, are recorded in duplicate records, one of which she keeps and files while the other aids the doctor at the clinic. Moreover, she keeps the patient supplied with paper napkins and bags—10,000 of which are given out every month—or, if he is intelligent enough, she supplies paper sputum boxes. She is now assisted in this work in Boston by a nun of the Social Service Association, who looks after most of the cases of the Massachusetts General out-patient department, by an agent of the Association for the Relief and Control of Tuberculosis, and by the health inspector. These last vary greatly in their skill in dealing with such cases. Often it is difficult to locate a case; false addresses are given, because tuberculous patients are not welcome as lodgers or neighbors. The same difficulty is encountered when they move from one place to another, as they are often compelled to do. If the nurse tries to find a room for one who is so obliged to move on, she, too, meets opposition everywhere.

She also advises and often secures the examination of other members of the family. This might be done by the school medical inspectors and would be in the case of other infectious diseases. It is especially difficult in Boston to place patients under 14 years of age. Rarely do tuberculous patients of any age seek hospital care, but the public should demand and supply it. Since March 12 she has looked after 242 patients from the Boston Dispensary, 89 from the Boston City Hospital, 114 from the Massachusetts General Hospital, and 19 from other institutions, a total of 464. Of these 273 were men; 42 have died; 35 were placed in hospitals; 33 were sent to Rutland, and 23 boarded out in other places. In spite of all possible care 40 have been lost track of in this short period of time.

Sanatorium Treatment of Pulmonary Tuberculosis.

DR. BRADFORD KENT spoke chiefly of the admissions to Rutland, with which work he is actively connected. Applicants for admission to the state sanatorium in Rutland must apply at the examiner's office in the out-patient department of the Massachusetts General Hospital between 1 and 3 p. m., on Wednesdays and Saturdays. Regular physicians are in attendance on Wednesdays and homeopathic representatives on Saturdays. There are 350 beds at Rutland. Of the 1,751 patients who applied this past year, 1,013 or 58 per cent., were refused. The refusals included patients who were helpless or bedridden, who had high temperatures, laryngeal tuberculosis, complications of asthma, chronic bronchitis, nephritis, etc. Pregnant patients are cared for till time for the confinement, and often are taken back after parturition. Patients under 14 or over 50 are not accepted. They must be residents of Massachusetts, though not necessarily legal residents, and must pay $4 per week for board. Often there is a waiting list of 20 to 25, and since an average of one case is discharged daily, a delay of about three weeks is usual before admission after they are pronounced acceptable. Cases refused are by no means hopeless.

There are available for these 58 per cent. of rejected cases only 139 beds in other institutions—not including the Boston chronic hospitals on Long Island and the State chronic hospitals at Tewksbury. These are good hospitals, especially for men, but the objection to pauperization is often insuperable. The sanatorium treatment is fresh air, food, baths, exercise, two hours' work daily, and a cheerful environment.

Municipal Sanitation and Control of Tuberculosis.

DR. H. LINCOLN CHASE presented the report prepared by Dr. Griffin and himself as Norfolk District members of the associated committees of the Massachusetts Medical Society for the Prevention and Control of Tuberculosis. Of the 25 towns and villages in the district, 6 of which are a part of Boston, 15 require registration of tuberculosis, but in only 8 are the physicians careful to do so. The physicians of Foxboro, however, report their cases to the town board of health though not required to do so. Thirteen towns have disinfection by the board of health, but no town has a penalty for leasing infected premises. Dorchester, Jamaica Plain, Mattapan and Roxbury, all parts of Boston, have inspection of tenements and schools. There are no public hospital provisions in the district for tuberculous patients, except that citizens of Boston may enter the Long Island Chronic Hospital. In Brookline male citizens may enter the Board of Health Hospital, but unlike other patients there, the consumptive, if unable to pay, must be classified as a pauper. A few patients from the district enter the Free Hospital for Consumptives, the Cullis Consumptives' Home, and the House of the Good Samaritan.

Brookline and Milton each have a district nurse who visits tuberculous patients. In no town is there inspection of employés or shops. The Plant Shoe Company, at Jamaica Plain, has its own physician, and the Holtzer-Cabot Electric Company, at Brookline, has posted notices forbidding spitting on the floors. In nine towns the cattle inspection is fairly thorough. Roxbury and Dorchester have had lectures and have formed classes for instruction. The Brookline Educational Society and the Woman's Club of Norwood have each had one lecture. In Dorchester alone have the churches taken any active measures for instruction and relief. In eight towns only of the 25 are the physicians even actively interested.

Home Treatment and Camp Life for Tuberculosis Patients.

DR. JOSEPH H. SAUNDERS stated that these methods are best adapted to patients who have sufficient strength of character to carry out instructions faithfully or to those who get so homesick in a sanatorium as to interfere with the success of that method. Most any house will do, but preferably it should be framed, and with ground about or behind it. A tenement with a veranda or a convenient roof may be made to serve if the rooms are sunny. In the vacant land or on the roof is the tent or shelter where the patient is to spend his time. Or a part of the veranda may be screened off. Herein is a cot bed, a reclining chair and extra blankets. A sleeping bag is a good thing, but the blankets may be folded under so as to answer much the same purpose. Hot-water bags are valuable to warm the bed before the patient gets in, in cold weather.

A day's routine, then, will be: After rising, a sponge bath, brisk rubdown, little food, some exercise, breakfast, rest in reclining chair, lunch, rest in chair, dinner, rest in chair, exercise, lunch, rest in chair, exercise, supper, evening with family, warm milk, warm bed at 9 p. m. Watch the weight; note the manner of eating. Let patient have thermometer and keep accurate four-hour records of temperature, pulse and respirations; and be guided by these as to the amounts of exercise to be prescribed. Note the mental condition. Give drugs symptomatically. See the patient weekly.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

UTAH State Board of Medical Examiners, Salt Lake City, January 7. Secretary, Dr. R. W. Fisher, Salt Lake City.

ARIZONA Board of Medical Examiners, Phoenix, January 7-8. Secretary, Dr. Ancil Martin, Phoenix.

ARKANSAS State Medical Board, State Capitol Bldg., Little Rock, January 8. Secretary, Dr. F. T. Murphy, Brinkley.

NEW HAMPSHIRE State Board of Medical Examiners, Concord, January 8-9. Regent, Dr. H. C. Morrison, Concord.

VERMONT State Board of Medical Registration, Montpelier, January 8-10. Secretary, Dr. W. Scott Nay, Underhill.

WISCONSIN State Board of Medical Examiners, Plankinton Hotel, Milwaukee, January 8-10. Secretary, Dr. J. V. Stevens, Jefferson.

SOUTH DAKOTA State Board of Medical Examiners, Sioux Falls, January 9-10. Secretary, Dr. H. E. McNutt, Aberdeen, S. D.

DISTRICT OF COLUMBIA Board of Supervisors in Medicine, Washington, January 10. Secretary, Dr. Geo. C. Ober, Washington.

ILLINOIS State Board of Health, Great Northern Hotel, Chicago, January 16-18. No applications received after January 5. Secretary, Dr. J. A. Egan, Springfield.

NEW YORK State Boards of Medical Examiners, Albany, January 29-February 1. Chief of Examining Division, Charles F. Wheelock, Albany.

Texas June Report.—Dr. T. T. Jackson, secretary of the Texas State Board of Medical Examiners, reports the written examination, held at Dallas, June 12-14, 1906. The total number of subjects examined in was 12; total number of questions asked, 146; percentage required to pass, 75. The total number of candidates examined was 144, of whom 103 passed, including 33 non-graduates, and 41 failed, including 15 non-graduates. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Colorado School of Med.	(1904)	79.9
College of P. and S., Chicago	(1906)	87.7
Rush Med. Coll.	(1902) 80.6; (1903)	79
Louisville Med. Coll.	(1904)	75
University of Louisville	(1905).* (1891)	81
Tulane University, (1905) 84.3; (1906) 75, 75.3, 77, 77.3, 78.6, 79, 86.1, 91.5.		77.4,
Johns Hopkins Med. School	(1906)	87.4
Maryland Med. Coll.	(1905)	76.4, 82.1
Baltimore Med. Coll.	(1905)	84.6
Harvard Med. School.	(1903)	78.3
Grand Rapids Med. Coll.	(1903)	81.1
Washington University	(1906)	93.4
College of P. and S., St. Louis	(1906)	81.5
Starling Med. Coll.	(1896)	81.5
Western Reserve University	(1900)	75.4
Woman's Med. Coll., Philadelphia	(1906)	88.1
Meharry Med. Coll.	(1905) 75.3; (1906) 75,	76.3
Memphis Hosp. Med. Coll.	(1906) 80.3, 81,	84.5
University of Tennessee	(1905) 77.8; (1906) 77, 77, 79.3,	86.6
Vanderbilt University	(1905) 81.4; (1906) 83.8,	85.4
Southwestern Univ. Med. Coll.	(1904) 78.3; (1906)	86
Dallas Med. Coll.	(1904)	75
University of Texas, (1906) 80.3, 82.3, 82.6, 83.1, 83.6, 84, 84, 87.4, 87.7, 89.5, 90.5, 90.8.		85.3,
Baylor University	(1905) 75, 77.8; (1906) 76.1, 80.1, 80.8,	83.5
Fort Worth University	(1906) 75.1, 80.1, 80.2, 80.3,	83
University of Virginia	(1904)	87.8
FAILED.		
University of Arkansas	(1901)	64.5
College of P. and S., Chicago	(1905)	71.7
Indiana Med. Coll.	(1904)	72.4
Kentucky School of Medicine	(1895)	65.5
St. Louis University (Marion-Sims-Beaumont Med. Coll.) 67.6, 73.		(1906)
College of P. and S., St. Louis	(1898)	68.1
Leonard School of Med.	(1906)	67.3
Western Reserve University	(1900)	69.9
Chattanooga Med. Coll.	(1901)	61.9
Memphis Hosp. Med. Coll.	(1905) 59.7; (1906) 68,	70.6
Meharry Med. Coll.	(1905) 61.3, 72.5; (1906) 62.5,	63.3
University of Nashville	(1900)	69.4
University of Tennessee	(1904)	65.3
Vanderbilt University	(1889) 61.5; (1906)	67.2
College of P. and S., Dallas	(1906) 50.1,	56.9
Bell Med. Coll.†	(1904)	26.6
Gonzales Med. Coll., Mexico City	(1892)	48.4
San Luis Potosi Med. Coll., Mexico	(1904)	64.9

* Percentage not given.

† Now the College of P. and S., Dallas, Tex.

The following questions were asked:

ANATOMY.*

1. Describe the humerus. 2. Describe the quadriceps extensor muscle. 3. Name the branches and give the relations of the external carotid artery. 4. Describe the median nerve. 5. Describe the gross anatomy of the liver. 6. Name the ducts of the salivary glands and write how you would outline the duct of the parotid gland. 7. What abdominal organs are partly covered by peritoneum? 8. Describe the left ventricle of the heart. 9. Describe the appendix vermiformis. 10. Describe the male urethra. 11. Name and illustrate the different varieties of movable joints. 12. Describe the points of special interest concerning Scarpa's triangle.

CHEMISTRY.*

1. Give two tests for albumin in the urine. 2. Give two tests for sugar in the urine. 3. Give Marsh's test for arsenic. 4. What are the chemical and physical properties of mercury? 5. Give valence and solubility of arsenic, iodin, lead, silver, potassium and sulphur. 6. Complete and describe the following: $3Ag2 + 8HNO_3 =$. 7. What are alcohols? How classified? 8. What are acids? What are salts? How is each produced? 9. Distinguish between synthetical and analytical reactions? 10. What is the formula of milk sugar, and in what respect does it differ from other sugar? 11. What is the difference between density and specific gravity? 12 What is the chemical antidote for phosphorus poisoning?

GYNECOLOGY.*

1. What are the causes of erosion of the cervix uteri? 2. What are the causes of true ulceration of the cervix uteri? 3. What complications might be present to contraindicate hysterectomy in a case of cancer of the uterus? 4. Describe steps of a vaginal hysterectomy. 5. What reaction have the secretions from a normal uterine cavity and normal vagina, and what effect have they on pathogenic organisms? 6. What are the most common causes of sterility? 7. Define submucous, interstitial, and subserous fibromyomata. 8. Which of the fibromyomata have the greatest tendency to undergo degenerative changes and to slough? 9. What is panhysterectomy? 10. In a case of hysterectomy, what advantages, if any, are gained by leaving intact one healthy ovary? 11. What are the contraindications to Alexander's operation for the shortening of the round ligaments? 12. When Alexander's operation is contraindicated, describe any operation which will be a good substitute for it.

HYGIENE.*

1. Describe the best method of handling and transporting milk for city distribution. 2. What diseases are not infrequently attributable to infected milk? 3. What disease is attributable to improperly cooked pork? 4. At what times should a school room not be swept. Give your reasons. 5. What instructions should be given to the public in a place threatened with an epidemic of yellow fever? 6. What precautions are necessary to prevent the spread of typhoid fever in a community. 7. Name and differentiate the malarial and yellow fever mosquitoes. 8. Give in detail the preparation of a private room for the treatment of scarlet fever patient. 9. How would you determine when to permit a scarlet fever patient to return to school? 10. What are the disadvantages of a stone or brick building in a damp climate? 11. Describe the preparation of a filter bed for a city of 100,000 inhabitants. 12. What is the best method of disposing of sewerage in an inland town of 10,000 inhabitants?

HISTOLOGY.*

1. Of how many coats is the stomach composed? 2. What is the character of the outer coat? 3. What kind of membrane lines the stomach? 4. Mention the important glands found in this membrane. 5. Define the liver. 6. Of what structure is the substance of the liver composed? 7. What character of membrane invests the liver? 8. Describe in a brief way the blood-supply of the liver. 9. Mention the structures of the spleen. 10. Explain the reason for that peculiar elasticity which the spleen possesses. 11. What vessels carry the blood to and from the spleen? 12. Describe briefly the substance of the spleen or spleen pulp.

MEDICAL JURISPRUDENCE.*

1. What do you understand by the terms civil malpractice and criminal malpractice? 2. What do you understand by the term expert witness in a medicolegal sense and how does he differ from an ordinary witness? 3. If called as an expert witness in a case where a child was found dead, what manifestations would you consider necessary to establish the fact that it was a live birth? 4. Mention the usual motives that underlie malingering, and mention what observations would assist you in differentiating between a feigned and a real condition of a suspect. 5. Give the general characteristics of a gunshot wound. 6. If a criminal is on trial for murder and a charge of insanity is sworn out against him, and you are called as a medical expert to make an examination to ascertain whether said person is insane or feigning insanity, mention briefly the examination you would make before testifying in the case. 7. If you reach the bedside of a patient about the time he dies from supposed poisoning, what would you do as the physician under such circumstances? 8. Mention what you understand by a dying declaration, its value as evidence and what rules should be observed in obtaining it. 9. If called to view the body of a man found dead from a gunshot wound, mention briefly what evidences would lead you to suspect suicide and what to make you suspect murder? 10. What is the value of a coroner's inquest, what care should be observed in taking testimony? 11. Give general directions for holding a postmortem and the recording of findings. 12. Differentiate the symptoms between acute alcohol poisoning, apoplexy and opium poisoning.

OBSTETRICS.*

1. Describe in brief the physiologic changes of the various organs and system genecally of the female in pregnancy. 2. Outline the hygienic treatment of the pregnant female. 3. What are the principal neuroses to which the pregnant woman is sometimes liable and the treatment? 4. What are the causes and treatment of leucorrhea during pregnancy? 5. How would you make a diagnosis of pelvic deformities? 6. At what period of pregnancy does the placenta as a separate organ date from and what is its function? 7. Give the measurements (a) of the circumference of the pelvis, (b) of the diameters of the inlet and (c) the diameters of the outlet. 8. (a) Give the circumference of the fetal head and (b) the diameters of the same. 9. Give the differential diagnosis between fibroid tumors and pregnancy. 10. Name the most frequent complications of labor and the causes. 11. (a) How is delivery managed when the bones of the fetal head are prematurely ossified? (b) How in excessive development of the trunk? 12. Describe the method of caring for the infant from the end of the second stage of labor until it is ready to be applied to the breast.

PATHOLOGY.*

1. What is the morbid anatomy of simple plastic pleurisy? 2. What is the pathologic condition in pleurisy with effusion? 3.

What morbid condition is found in respiratory organs in la grippe? 4. What is the pathology of hay fever? 5. Pathologic appearance in tubercular laryngitis? 6. Morbid anatomy of syphilitic (tertiary) laryngitis? 7. Where would you suspect pathologic lesion and what would it likely be with these symptoms present: With failing health the patient becomes pale with puffiness of eye-lids or swollen feet in the morning, scanty urine loaded with albumin, tube casts, some red-blood corpuscles with generally low specific gravity and general anasarca later with disturbance of the digestive system? 8. Outline morbid anatomy of chronic interstitial nephritis. 9. With put in urine which is alkaline and bad smelling, coming with last portion of urine passed, what morbid condition would you suspect? 10. Mention morbidities of the kidney liable to result from urethral stricture. 11. What is your opinion as to the pathology of malarial hematuria or "black jaundice?" 12. In what part of the human system, in your opinion, is the morbidity which is resposible for all symptoms in malarial subjects?

PHYSIOLOGY.*

1. What is the source of potential energy which is contained in food? 2. Name the waste products contained in the blood plasma. 3. What are the effects of removing all the inorganic salts from the blood? 4. Is lymph a product of the lymphatic glands? 5. What determines the moment at which a cardiac valve opens and closes. 6. How does severe hemorrhage cause dilution of the blood? 7. What are the principal branches and their functions given off from the trunk of the pneumogastric nerve? 8. Describe the structure and function of the iris. 9. What is meant by the refracting apparatus of the eye? 10. What is the function of the tensor tympani muscle? 11. What is meant by the vital capacity of the lungs? 12. By what means is the caliber of the blood vessels regulated?

PRACTICE.*

1. What do you understand by the terms: Symptoms, signs and period of incubation? 2. Describe the different valvular diseases of the heart, and treatment? 3. Give cause, symptoms and treatment of uremia. 4. How would you diagnose and treat a case of croupous pneumonia? 5. Name the different forms of malarial fever, cause and treatment for same. 6. What are the symptoms and treatment of congestion of the brain? 7. What is cholera infantum, cause and treatment? 8. What is facial paralysis, causes, symptoms and treatment? 9. What are the symptoms, diagnosis and treatment of acute and chronic mania? 10. What is neurasthenia, its causes, symptoms and treatment? 11. What is the prognosis and treatment of aphasia? 12. What are the symptoms of acute myelitis and treatment?

SURGERY.*

1. What are the symptoms of non-impacted fracture of the neck of the femur? (a) What are the symptoms of fracture of the olecranon process? 2. Give in detail one method of reduction of a subglenoid dislocation of the shoulder joint. 3. What are the dangers of gunshot wounds through the lung? (a) What complications may arise and how would you prevent them? 4. Give differential diagnosis of chancre, herpes genitalis, and chancroid. 5. What are the first important symptoms of secondary syphilis? (a) What symptoms characterize the tertiary stage? 6. What is a "stitch abscess?" (a) What causes them, and how would you prevent them? 7. What should be the condition of a wound when skin-grafting is done? (a) What method of skin-grafting would you adopt? 8. What is meant by "surgical shock?" (a) How would you prevent it? (b) How treat it? 9. Explain how you would amputate an appendix, and how you would treat the stump. 10. Explain in detail how you would dress and treat a dirty, lacerated wound of the scalp extending through the periosteum. 11. What general rule would follow in amputation of parts of the hand? 12. What are the causes of delayed union in fractured bones and what is the treatment?

EYE, EAR, NOSE AND THROAT.**

1. Give the gross anatomy of the eyelids. (a) Of the eyeball. 2. What are the symptoms of iritis? (a) Of conjunctivitis? (b) Give treatment for each. 3. How would you treat specific infection of the eye? 4. What are adenoids? Give diagnosis and treatment. 5. What diseases are most often followed by ear and throat complications? 6. Give gross anatomy of the ear.

MATERIA MEDICA AND THERAPEUTICS.†

1. How does morphin, when taken internally, affect the respiration, the heart action and the pupil of the eye; and how does it affect the pupil when applied locally? 2. In prescribing syrup of squill as a cough syrup with ammonium, which would be better, the carbonate or the chlorid? Give your reason for the answer. 3. Would you combine silver nitrate and creosote in the same prescription? Give your reason for the answer. 4. Write a prescription illustrating physiologic incompatibility. 5. Give the strength of the following tinctures according to both the old and the new (1905) Pharmacopeias. Tincture of aconite, tincture of strophanthus, and tincture of cantharides. 6. How many grains of hydrochlorate of cocain are contained in one ounce of a 4 per cent. solution? 7. What is the difference in the effect of nitroglycerin and suprarenal extract on the blood vessels. 8. Name the uses and dose of urotropin. 9. How would you order chicken or mutton broth made as food for a patient? 10. What is white precipitate, and how made? 11. What is the alkaloid of pomegranate and for what is it used? 12. What is the dose of the infusion of digitalis, ammonium iodid, hyoscine hydrobromate and the tincture of veratrum viride; this last one as given by both the old and new Pharmacopeias? 13. State the composition and dose of pulvis jalapæ compositus. 14. What effect has pilocarpus on the heart, on the skin and on the salivary glands? 15. Mention a remedy that will arrest the secretion of milk and state how it should be employed. 16. How many grains of mercuric bichlorid in a pint of a one to one thousand solution? How did you reach your conclusion? 17. State the name and the dose of a drug belonging to each of the following classes; (a) emetics, (b) diuretics, (c) diaphoretics, (d) cathartics. 18. What is the dose of (a) tinct. opii camph. (b) tinct. opii deod., (c) morphin sulphate, (d) codein phosphate?

* The applicant will select and answer ten questions and strike out those not answered.

** The applicant will select and answer five of the questions on eye, ear, nose and throat, and strike out the one not answered.

† The applicant will select and answer fifteen questions, and strike out those not answered.

Iowa September Report.—Dr. J. F. Kennedy, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Sept. 11-13, 1906. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 21, of whom 11 passed and 10 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
College of P. and S., Chicago	(1906)	75, 82
Sioux City Coll. of Med.	(1906)	77
Harvard University	(1898)	80
College of P. and S., St. Louis	(1905)	80
Washington University, St. Louis	(1906)	81
Creighton Med. Coll.	(1906)	78
Jefferson Med. Coll.	(1906)	83
Queen's University, Canada	(1906)	82
Trinity University, Canada	(1904)	86
King Frederick's University, Christiania, Norway	(1902)	78
FAILED.		
Sioux City Coll. of Med	(1906)	65
Keokuk Med. Coll.	(1904) 63, 65; (1906) 57, 65, 72, 73, 74, ..	*
College of P. and S., St. Louis	(1906)	60

* Percentage not given.

Arkansas October Report.—Dr. J. P. Runyan, former secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, Oct. 9, 1906. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 26, of whom 18 passed, including 5 non-graduates, and 8 failed, including 4 non-graduates. At this examination there were also licensed four old practitioners, two of whom were non-graduates, one a graduate of the Kentucky University in 1901, and one a graduate of the Beaumont Hospital Medical College in 1896. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
College of P. and S., Atlanta	(1905) 88; (1906)	80
College of P. and S., Keokuk	(1872)	75
University of Kentucky	(1906)	75
University of Maryland	(1906)	87
Missouri Med. Coll., St. Louis	(1886) 87; (1896)	82
Washington University, St. Louis	(1872) 75; (1905)	84
Leonard School of Med.	(1906)	79
Med. Coll. of Ohio	(1887)	88
Meharry Med. Coll.	(1905)	78, 78
FAILED.		
Hospital Coll. of Med., Louisville	(1890)	71.8
Lincoln Med. Coll.	(1898)	65
Meharry Med. Coll.	(1906)	66
Southwestern University Med. Coll., Dallas		*64

* Year of graduation not given.

Nebraska November Report.—Dr. George H. Brash, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 7-8, 1906. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 12, of whom 10 passed and 2 failed. Twenty reciprocal licenses were granted. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
American Med. Miss. Coll.	(1903)	90.1
University of Kansas	(1906)	78.3
University of Michigan	(1906)	90.2
Creighton Med. Coll.	(1906) 75, 75.1,	78.1
Lincoln Med. Coll.	(1906) 75, 86.1,	82.3
Western University, London, Ontario	(1904)	75.2
FAILED.		
Barnes Med. Coll.	(1906)	67.8
St. Louis University (Marion-Sims-Beaumont Med. Coll.)	(1904)	69.6

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
Rush Med. Coll.	(1902)	Wisconsin
Rush Med. Coll.	(1903) (1904)	Illinois
Illinois Med. Coll.	(1906)	Illinois
American Med. Miss. Coll.	(1904)	Illinois
Northwestern University	(2, 1904)	Illinois
University of Iowa	(1897) (1904)	Iowa
College of P. and S., Chicago	(1901)	Iowa
College of P. and S., Keokuk	(1895) (1888)	Kansas
Sioux City Coll. of Med.	(1901)	Iowa
Medical College of Indiana	(1901)	Indiana
St. Louis University (Marion-Sims-Beaumont Med. Coll.)	(1902)	Illinois
Kansas City Med. Coll.	(1898)	Iowa
University of Buffalo	(1883)	New York
Pulte Med. Coll.	(1901)	Ohio
Ohio Med. University	(1903)	Ohio
University of Prague, Austria	(1890)	Illinois

Therapeutics

Creosote.

Skinner, in an abstract in the *Miss. Med. Record*, states that creosote should always be given in rather minute quantities, well covered and administered after meals, because of the unpleasant taste of the preparation and its tendency to produce gastric irritation, when given in large doses. There are several unofficial compounds, according to Skinner, which are practically tasteless and non-irritating to the gastric mucosa. He mentions among these the following:

1. Guaiacol: Dose—minims 1 to V (.06 to .30).
2. Guaiacol carbonate: Dose—grains 1 to V (.06 to .30).
3. Creosote carbonate: Dose—minims III to V (.20 to .30).

As an intestinal antiseptic he recommends the following combination:

℞ Creosti ..... m. iii |20
Tinct. capsici ..... m. v |30
Tinct. nucis vom. ..... m. vii |45
Elix. calisayæ q. s. ad. ..... f3i 4|

M. Sig.: To be taken at one dose.

In the acute diarrheas of infancy and childhood the conditions and symptoms are much improved by the use of creosote in doses of from one-tenth to one minim (.006 to .06).

Intratracheal and Intralaryngeal Injections.

W. B. Harland in International Clinics, states that the reason that such injections are not used more extensively, is that the treatment must be made daily or every other day and also because the technic is not acquired without some care and patience. These injections may be given either as a sedative, expectorant, or as a germicide. He recommends this method of medication in cases of chronic catarrhal cough; chronic tracheitis; chronic bronchitis; bronchiectasis; bronchorrhea; abscess of the lung; gangrene of the lung; in some cases of hemoptysis; tuberculosis of the lungs; and in simple tuberculosis, or syphilitic laryngitis. He speaks against their use in the acute hyperemic stage of any inflammation. Hemoptysis is, as a rule, a contraindication and as complications reflex spasm of the glottis, pneumonia and pulmonary hemorrhage may arise.

As sedatives to the mucus membrane he advises one of the following dissolved in a vehicle such as olive oil: Menthol, 1 to 10 per cent.; heroin, grain 1/24 (.0025); morphin, grain 1/8 (.008); chloroform, 5 minims (.30); compound tincture of benzoin, M. V. (.30); chloretone, 1 per cent.; camphor, 0.5 to 2 per cent.

As expectorants one of the following may be used: Creosote, 1 to 2 per cent.; guaiacol, 1 to 2 per cent.; iodin, a sufficient amount to make a pink solution.

As antiseptics he recommends one of the following: Oil of thyme, 2 per cent.; oil of eucalyptus, 2 per cent.; oil of cinnamon, 2 per cent.; oil of gaultheria, 2 per cent.; salol, 3 per cent.; ichthyol, 2 per cent.; iodoform, grain ⅛ (.008); potassium permanganate, grain 1/8 (.008).

As a good combination he recommends the following:

℞ Creosoti
Menthol, āā ..... gr. v-xv |30-.65
Olei olivæ ..... f3i 30|

M. Sig.: Two drams to be injected at one dose daily, every other day or twice a week.

To each dose of the foregoing he states that heroin grain 1/24 (.0025), or morphin, grain 1/8 (.008) may be added if the cough is a prominent symptom. If the expectoration is fetid or contains tubercle bacilli, iodoform grain ½ (.03) may be added.

The following formula, after Mendel, may be of service:

R: Iodoformi
Guaiacol
Essentiæ thymi
Essentiæ cinnamomi
Essentiæ eucalypti, āā ..... 3i 4|
Olei olivæ ..... f3iii 90|

M. Sig.: One dram as an injection once daily.

Or, according to Campbell, the following combination may be used:

℞ Thymol
Menthol, āā ..... 3i 4|
Salol ..... 3ii 8|
Olei olivæ ..... f3v 150|

M. Dissolve on a water bath. Sig.: Two drams to be injected once a day.

For tuberculous ulceration of the larynx accompanied by painful deglutition the following combination is advised:

℞ Heroin hydrochloratis ..... gr. iii |20
Aquæ ..... f3i 30|

M. Sig.: A few drops of a warmed solution to be applied by means of a syringe to the ulcer before taking food.

Freudenthal recommends that in the beginning a 1 per cent. solution of menthol be used, gradually increased to 10 per cent. A combination as follows is also recommmended:

℞ Menthol ..... gr. xx 1|30
Pulv. acaciæ
Olei amygdalæ
Aquæ dest., āā ..... f3iiss 10|
M. Ft. emulsio et adde
Spiritus frumenti ..... f3iv 15|
Aquæ dest. ..... f3ii 60|

M. Sig.: Inject one to two teaspoonsful into the larynx.

The author states that as a rule a local anesthetic is not necessary, but if it is required, he advises a 4 per cent. solution of cocain applied on a cotton-tipped laryngeal applicator.

Pharmacopeia for Infants.

UNGUENTA (Continued).

Unguentum hydrargyri nitratis:

℞ Ung. hydrarg. nitratis ..... 3i 4|
Lanolini ..... 3vii 28|

M. Ft. unguentum. Sig.: Apply locally.

Unguentum oxidi flavi:

℞ Hydrarg. oxidi flavi ..... gr. viii |50
Paraffin mollis ..... 3i 30|

M. Ft. unguentum. Sig.: Apply locally.

Unguentum oxidi rubri dilutum:

℞ Hydrarg. oxidi rubri ..... 3ss 2|
Paraffin mollis ..... 3i 30|

M. Ft. unguentum. Sig.: Apply locally.

Unguentum hydrargyri subchloridi cum zinco:

℞ Zinci oxidi ..... 3ss 15|
Hydrarg. chloridi mitis ..... 3ss 2|
Olei amygdalæ dulcis ..... 3ss 15|
Lanolini ..... 3i 4|
Misce et adde
Aquæ calcis ..... f3iii 12|

M. Sig.: Apply locally.

Unguentum plumbi oleatis:

℞ Plumbi oleatis
Paraffin mollis, āā ..... 3i 30|

M. Ft. unguentum. Sig.: Apply locally.

Unguentum simplex:

℞ Ceri flavi ..... 3ii 8|
Olei olivæ ..... 3ss 15|
Adipis ..... 3vi 24|

M. Ft. unguentum. Sig.: Apply locally.

Unguentum sulphuris compositum:

℞ Sulphuris ..... 3iii 12|
Hydrarg. ammoniati
Hydrarg. sulphid, āā ..... gr. xii |75
Olei olivæ ..... 3iss 6|
Creosoti ..... m. i |06
Adipis ..... 3vi 24|

M. Ft. unguentum. Sig.: Apply locally.

Unguenti zinci oleatis:

℞ Zinci oxidi ..... 3i 4|
Acidi oleici ..... 3i 30|

Mix and allow to stand for two hours; then heat sufficiently to complete solution and add:

Lanolini ..... 3i 30|

M. Ft. unguentum. Sig.: Apply locally.

GUTTÆ.

Guttæ atropinæ et cocainæ:

℞ Atropinæ sulphatis ..... gr. ii |12
Cocainæ hydrochlor. ..... gr. x |65
Aquæ dest. ..... 3i 30|

M. Sig.: To be used under the physician's directions.

Guttæ atropinæ sulphatis:

R. Atropinæ sulphatis .....gr. i |06
Aquæ dest. .....f℥i 30|

M. Sig.: To be used under the physician's directions.

Guttæ argenti nitratis:

R. Argenti nitratis.....gr. iii |20
Aquæ dest. .....℥i 30|

M. Sig.: To be used under the physician's directions.

Guttæ cocainæ hydrochloratis:

R. Cocainæ hydrochloratis.....gr. x |65
Aquæ dest. .....℥i 30|

M. Sig.: To be used under the physician's directions.

Guttæ homatropinæ:

R. Homatropinæ hydrobromidi.....gr. iv |25
Aquæ dest. .....℥i 30|

M. Sig.: To be used under the physician's directions.

INJECTIONS.

Injectio morphinæ hypodermica:

R. Morphinæ .....gr. 1/600 |0001
Aquæ dest.....m. v |30

M. Sig.: To be used under the physician's directions.

Injectio strychninæ:

R. Strych. hydrochloridi.....gr. 1/1000 |00001
Aquæ dest. .....m. v |30

M. Sig.: Use as an injection hypodermically under the physician's directions.

ELECTUARIES.

Linctus infantilis:

R. Tinct. camphoræ comp. (B. P.) |
Vini ipecacuanhæ, āā.....m. i |06
Glycerini .....m. x |65
Aquæ menth. pip. q. s. ad.....f℥i 4|

M. Sig.: Give as directed.

Linctus pectoralis:

R. Oxymel scillæ.....m. ii |12
Vini ipecacuanhæ |
Tinct. camph. co. (B. P.) |
Spts. etheris nitrosi, āā.....m. i |06
Aquæ q. s. ad.....f℥i 4|

M. Sig.: Give as directed by the physician.

Linctus acidus:

R. Acidi sulphurici dil. |
Spts. chloroformi, āā.....m. i |06
Oxymel .....m. x |65
Treacle q. s. ad.....f℥i 4|

M. Sig.: Give as directed.

LINIMENT.

Linimentum terebinthinum dilutum:

R. Linimenti terebinthinæ |
Olei olivæ, āā.....f℥ii 60|

M. Ft. linimentum. Sig.: Apply locally.

ENEMATA.

Enema astringens:

R. Argenti nitratis.....gr. ¼ |015
Aquæ .....f℥i 30|

M. Sig.: Use as an enema.

Enema olei:

R. Olei olivæ .....f℥i 30|

Sig.: Give at one enema.

Enema sedans:

R. Chloralis hydratis.....gr. i-iii |06-.20
Aquæ .....f℥ii 8|

M. Sig.: Give at one enema.

Medicolegal

Death from Septicemia, Sunstroke, Anesthetic, Etc.

The United States Circuit Court, in Pennsylvania, holds, in the case of Herdic vs. the Maryland Casualty Co., that death from septicemia, after an operation for appendicitis, was not covered by an accident policy which contained the clause: "This policy does not cover death or disability resulting from mineral, vegetable, gaseous, or any other kind of poisoning, except as hereinafter stated, but, subject to its conditions, covers death or disability resulting from septicemia, freezing, sunstroke, drowning, hydrophobia, choking in swallowing, and death only, as the result of an anesthetic, while actually undergoing a surgical operation at the hands of a duly qualified regular physician." The court says that septicemia, as is well known, is brought about by the absorption into the blood of putrescent or poisonous matter, and, under the designation of "blood-poisoning," might possibly be regarded as excluded, although it has been held to the contrary. But when proceeding from external and violent sources, septicemia is a well-recognized ground of liability in accident insurance. Acceding to this, and in order to remove all question, by this provision septicemia is declared to be covered by the policy, relieving it from the possible effect of that which had gone before. There is no intent manifested in this to depart from the general scheme of the policy, limiting liability to where death is the result of external, violent, and accidental means.

Again, the court says that no doubt the causes of death spoken of go together, and the construction to be adopted must be good as to all or none. But, so far as regards the possibility of accidental death from septicemia, freezing, drowning, and choking in swallowing, there can be no dispute. Neither, as it seems to the court, can there be with regard to an anesthetic, as to which common experience shows that there may be an unintentional and adventitious overadministration of it, within the meaning of the policy, even at the hands of a careful and experienced physician or surgeon of the strictest school. This leaves only hydrophobia and sunstroke to be accounted for, which it must be confessed are diseases pure and simple, and as to which the point may therefore seem to be well made. But the popular idea is not so, and sunstroke, at least has been the subject of considerable litigation, as the decided case shows. As a concession to this view, and in order to remove all controversy (the same as in the case of septicemia) sunstroke and hydrophobia are put in with the rest, the company declaring that, as to them, just as the others, the policy holds good. This is the natural and logical construction to be given to this provision of the policy, and the one therefore which must prevail.

Health Officer Entitled to Appeal in Salary Case.

The Court of Appeals of Kentucky says, in Butler County vs. Gardner, that the latter party was appointed health officer for the county on November 14, 1904, and on April 5, 1905, he went before the fiscal court of the county and asked for an allowance of $500 per year for his services as such health officer. The fiscal court, however, having considered the matter, entered an order fixing his salary at $100 per year, commencing with the date of his appointment. From that order he appealed to the circuit court of the county, where, on a trial before a jury, he was given a verdict for $300. Did the circuit court have jurisdiction of the appeal to it? Chapter 35 of the Acts of the Legislature of 1904 provides that the local board of health shall appoint a competent practicing physician, who shall be the health officer of the county and secretary of the board. His duty shall be to see that the rules and regulations provided for in this act and the rules and regulations of the state board of health are enforced. He shall hold his office at the pleasure of said board. He shall receive a salary, the amount of which is to be fixed by the fiscal court at the time or immediately after his election and in no state of case shall he claim or receive from the county any compensation other than the salary fixed by the fiscal court. The county contended that the order of the fiscal court is final, and that no appeal lies therefrom. But the Court of Appeals holds that this case was clearly one in which the party feeling himself aggrieved had the right to an appeal, section 978 of the Kentucky Statutes of 1903, which regulates appeals, providing that appeals may be taken to a circuit court from all orders and judgments of the fiscal courts in civil cases where the value in controversy, exclusive of interest and costs, is over $25. The court says, too, that it was clearly the intention of the law makers in the draft of chapter 35 of the Acts of 1904 that the fiscal court, in fixing the salary of the health officer, should fix it at a "reasonable amount"—an amount

commensurate with the services, estimated from past experience and present conditions, which he would be required to perform during the year.

Will Not Split Physician's Interview Into Parts.

The St. Louis Court of Appeals says, in the personal injury case of Obermeyer vs. F. H. Logeman Chair Manufacturing Co., that error was assigned in a refusal of the court to permit a physician to testify to a conversation had with the plaintiff in regard to his injury and how he happened to be injured. Section 4659 of the Revised Statutes of Missouri of 1899 provides: "The following persons shall be competent to testify: * * * fifth, a physician or surgeon, concerning any information which he may have acquired from any patient while attending him in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or do any act for him as a surgeon." The plaintiff, nearly 15 years of age, was in the employ of the defendant when injured. The evidence of the physician referred to showed that when the plaintiff was injured the defendant sent him to the physician's office for treatment and the interview in question was had while the plaintiff was in his care. In answer to the following questions: "The subject of your interview and conversation with him was to ascertain his condition for the purpose of treating him?" the physician said, "Yes, sir. And there were other motives there." He further testified that he was acting as physician and surgeon for the defendant, and that the remarks made by the plaintiff were not made in answer to any questions asked in order to treat him properly. But, the court goes on to say, the fact that the physician examined the plaintiff at the instance and request of the defendant for the purpose of treating him did not remove his incompetency. The physician's testimony showed that he had a double purpose in holding the interview with the plaintiff: First, to ascertain his condition for the purpose of treating him professionally; second, to ply the boy with questions, while he was suffering from shock and severe pain as a result of the recent injury, for the purpose of getting some statement or admission from him that would be advantageous to his (the physician's) employer, the defendant, in case the boy should sue to recover compensation for his injury. In these circumstances the court is not inclined to split the interview into parts and determine what parts were and were not necessary to enable the physician to prescribe for the plaintiff, but to hold him incompetent to testify to any part of the interview.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

December 15.

1 *Leprosy as Seen in the Philippines. C. B. Ewing, U. S. Army.
2 *Scope and Value of the Sanatorium in the Antituberculosis Movement. H. M. King, Liberty, N. Y.
3 *Prostatectomy in Diabetes. J. Wiener, New York.
4 *Rôle of Suggestion in Therapeutics. W. B. Cornell, Baltimore.
5 *Gastroptosis in Relation to Hyperchlorhydria. E. Reissman, Newark, N. J.

1. **Leprosy in Philippines.**—Ewing found that aside from racial characteristics, the general features of leprosy in the Philippines are the same as those found in the disease occurring elsewhere. He has studied 36 cases, and of this number he has obtained 26 outline figure cards. Of these 26 patients 14 were males and 12 females. Of the 14 males 4 had anesthetic, 8 tubercular, and 2 mixed leprosy. Ewing doubts whether or not a cure will ever be found for leprosy. Segregation of lepers and isolation of children of leprous parents are the preventive measures that will give the best results.

2. **Value of Sanatorium in Antituberculosis Movement.**—King sums up his paper as follows: The sanatorium offers the tuberculous invalid the most practical, indeed the only systematic, method of fighting his disease and acquiring hygienic education in its prevention. It is a most valuable educational factor, not only in the immediate community in which it is located, but to a very great extent in the community at large, and it has a definite and important place, which can scarcely otherwise be filled in the study and investigation of the disease and its complications. In these three relationships the sanatorium possesses a scope and value of vital importance in the present great antituberculosis movement, and King believes that whatever the future may have in store for it, the sanatorium must always hold a place, and a vitally important one, in this great movement.

3. **Prostatectomy in Diabetes.**—Wiener says that the diabetic patient facing a prostatectomy is exposed to three dangers, namely, the anesthetic, hemorrhage, and shock. The dangers peculiar to the diabetic are coma and wound infection. Wiener advises the removal of the prostate under laughing gas, and suggests dividing the operation into two stages. At the preliminary operation the bladder is opened under local anesthesia, and after a few days the prostate can be removed through this incision, under gas, in a very few minutes. Under such conditions there need be no fear of coma. The danger of wound infection can be reduced to a minimum by the preliminary incision and drainage of the bladder. Urinary antiseptics may be given both before and after operation, and daily bladder irrigations. Wiener has had excellent success in his treatment of these cases.

4. **Rôle of Suggestions in Therapeutics.**—Cornell believes that psychotherapy is of great value to the general practitioner. The ability to minister to the mind as well as to the body is possessed by those physicians who possess the highest qualities to be found in their profession. Psychology and psychiatry should receive their proper attention in the years of medical training, and then, in due order, would follow instruction in therapeutic psychology.

5. **Gastroptosis in Relation to Hyperchlorhydria.**—Reissman states that relaxation of the abdominal muscles is the essential feature in gastroptosis. All forms of anomalous gastric secretion, hyperchlorhydria, hypochlorhydria, and achylia, may be due to gastric atony. All forms of secretory disorders in the stomach may be connected with gastroptosis. Plaster strapping is advised to relieve abdominal relaxation.

New York Medical Journal.

December 15.

6 *Fat Content of the Tonsils and Its Relation to the Processes of Metabolism and Infection. J. Wright, New York.
7 New Building of the Woman's Hospital of the State of New York; Some Special Features of Its Construction. L. Broun.
8 *Aortic Aneurism Treated by Introduction of Fifteen Feet of Silver Wire. Death After Four Months. J. R. Eastman, Indianapolis.
9 *Rôle of the Blood in Nutrition and Repair. J. P. Arnold, Philadelphia.
10 Steroradiography. F. A. Faught, Philadelphia.
11 *Acute Primary Dilatation of the Heart. J. S. Wight, Brooklyn, N. Y.
12 Medical Climatology of Southern California. H. F. L. Ziegel, New York.
13 Abdominal Pregnancy. J. E. Cannaday, Hansford, W. Va.
14 *An Unusual Case of Suppression of Urine. H. D. Howe, Hampton, Va.

6. **Tonsils and Infection.**—For many years from time to time, Wright noted in the microscopic sections of lymphoid tissue removed from the nasopharynx and oropharynx spaces which he formerly regarded as ectasia of the lymph channels and reported them as cysts of the lymphoid tissue. A recent observation led him to conjecture that some, at least, of the spaces in the lymphoid tissue are due to fatty degeneration, and that this is one of the processes of tonsillar regression. This involved the supposition that the lymphoid cells undergo to some extent a fatty metamorphosis or a fatty infiltration during the shrinking of the tonsils in adolescence. In a series of cases in which excised tonsils were examined for their fat contents, no selection of cases was resorted to. Ten or twelve cases were taken as they came in the routine of the clinic, and the excised tonsils (both sides) were immediately put in osmic acid solutions or subjected to the process necessary for staining with Sudan III and scharlach red, viz.: Short preliminary hardening in formalin and subsequent freezing for sectioning. The latter process was unsatisfactory, and for the most part the observations were made on the osmic acid specimens.

After becoming familiar with the appearance of fat in the tonsils under ordinary conditions, ten or more cases were taken as before, without selection, from the routine of the clinic. In these one or both tonsils were smeared with butter ten or fifteen minutes before a tonsillotomy. In these cases the distribution of the fat was relatively exactly the same as in the other cases, but the increase in amount was everywhere very decided. It was especially more abundant in the granular protoplasm of cells that were disintegrating. No doubt could be left in the mind of the observer that fat in the form of droplets may migrate into degenerating as well as into normal cells. It is natural to conclude, therefore, that some at least of the intracellular fat is normally derived from the passing food, but he is unable to assert that it all comes from this source. While perhaps it might be thought that there was a larger amount of extracellular droplets in the buttered tonsils, there was the same tendency to grouping around the nuclei of degenerated cells. There was no greater amount of fat in or just beneath the surface epithelium, but on the surface such fat as existed was invariably in the form of minute droplets. It had been immediately saponified or emulsified, and this was a preliminary to absorption. Wright says that evidently the rapidity of the absorption of fat by the tonsillar epithelium is greater even than that of dust.

8. **Aortic Aneurism.**—In Eastman's case fifteen feet of No. 28 silver wire were injected into the cavity of the aneurism through a fine trocar. The trocar was entered over the area of expansile pulsation and passed directly backward into the chest for a distance of two and one-half inches. The proximal end of the wire was anchored to the skin of the chest wall with adhesive plaster. No anesthetic was used. At this time 300 c.c. of sterile 2 per cent. gelatin were injected into the subcutaneous tissues of the thighs (after Lancereaux). After the introduction of the wire the pain became worse, and three weeks later five feet of wire were removed. Orthopnea developed and gradually became worse, being extreme at the time of the death of the patient. The left chest became filled with serosanguinous fluid which was drawn off one month after the operation. The condition of the patient seemed somewhat improved following the withdrawal of this fluid, but the cavity gradually refilled. The patient died at stool. Death was accompanied by profuse hemorrhage at the mouth.

9. **Blood in Nutrition and Repair.**—According to Arnold, except as the result of direct injury, no cell in the body can be sick or diseased if it is supplied with the proper quality and quantity of lymph, and has its waste products properly removed. As the proper quality and quantity of lymph depend on the quality and quantity of blood the conclusion may be stated as follows: No cell can be sick or diseased, except as the result of direct injury, if it be supplied with the proper quality and quantity of blood and have its waste products properly removed. Even the result of direct injury may be brought within this conclusion, for an injury immediately alters the quality and quantity of blood in the injured part.

11. **Primary Dilatation of Heart.**—Wright summarizes his paper as follows: 1. Acute primary dilatation of the right heart occurs immediately after the strain. 2. Acute primary dilatation of the right heart occurs after some days or weeks. 3. Predisposing causes must be looked for among those factors that prevent the changes resulting from the heart's activity from being compensated for in its metabolism. 4. Acute heart strain can occur and go unrecognized. 5. Acute primary dilatation of the right heart does not necessarily seriously prostrate or prevent the victim from going about. 6. Acute primary dilatation of the right heart may initiate organic heart disease. 7. Acute primary dilatation of the right heart may initiate organic disease of the kidneys. 8. The right ventricle dilates more readily under strain, as its walls are less than half as thick as the left.

14. **Suppression of Urine.**—In the case reported by Howe, the patient did not pass any urine for 25 days. The autopsy showed the left kidney to be a mere thin-walled cyst, containing about ten ounces of clear fluid. There was no macroscopic evidence of kidney structure. The ureter was obliterated at the pelvic brim by a carcinomatous mass, originating from the stump of the broad ligament and involving the sigmoid and rectum. The right kidney showed true hypertrophy of the kidney structure, as well as great dilatation of the pelvis. As on the left the ureter was entirely obliterated by a carcinomatous mass arising from the stump of the right broad ligament.

Boston Medical and Surgical Journal.

December 13.

15 Experience in the Treatment of Tabes by Coördinative Exercises. E. W. Taylor, and E. A. Lindström, Boston.
16 Physical Training of Girls in the Brookline High Schools. W. Channing, Brookline.
17 *Examination of the Teeth of Children in the Public Schools. W. H. Potter, Boston.
18 *Examination of the Eyes of 420 School Children. R. G. Loring, Boston.
19 Aural and Nasal Examinations of School Children. D. H. Walker, Boston.

December 20.

20 *Death and Sudden Death. L. M. Palmer, South Framingham, Mass.
21 Criminal Abortion, Perforation of the Uterus with Passage of the Fetus into the Abdominal Cavity and Prolapse of the Intestine. F. A. Harris and W. P. Whitney.
22 Case of Death from the Electric Current While Handling the Telephone and an Electric Light Fixture. A. E. Paine, Brockton, Mass.
23 Grover Shoe Factory Disaster with Reference to Identification of Burned Bodies. A. E. Paine, Brockton, Mass.
24 An Obscure Case. S. F. Quimby, Gloucester, Mass.
25 *Death from Air Embolism of the Uterine Sinuses. F. Holyoke, Mass.
26 Death by Violence, Manner Unknown. R. B. Root, Georgetown, Mass.

17. **Examination of Teeth of Children in Public Schools.**—Potter believes it is very desirable that once a year the teeth of all children in grammar schools be examined and their condition reported to parents with appropriate advice. This examination should, preferably, be made in the fall of the year, soon after the opening of school. Short, practical talks to school children would help much to increase their intelligence as to the value of good teeth in promoting nutrition and general health, and would interest them in the condition of their own mouths.

18. **Examination of Eyes of School Children.**—Among 420 children, 167 were classed by Loring as normal, having perfect vision, no ocular symptoms, and no perceptible refractive errors; 155 had little refractive error, good vision, and slight symptoms not sufficient to need treatment; 98 had either less than half vision, troublesome symptoms or marked refractive errors, and were mostly referred for further examination. He found an increasing number of defective eyes in the higher grades, and a majority of normal eyes among the good students, and a majority of defective eyes among the poor students.

20. **Death and Sudden Death.**—Palmer arrives at the following conclusions: 1. We can not say absolutely when the exact time of death occurs. 2. There is such a thing as apparent death. 3. There is a possibility, remote though it may be, of a person being buried alive, who has not been embalmed or seen by a medical inspector. 4. It is the duty of every physician to inspect every patient reported as dead, and to satisfy himself of the fact by careful examination. 5. It would be in the interest of science and humanity that no body should ever be buried without a medical examination. 6. Every case of sudden death, as well as those of violence, should be reported to the medical examiners in this state. 7. We should use our influence as physicians to educate the public to a greater willingness to allow more autopsies.

25. **Death from Air Embolism of Uterine Sinuses.**—Holyoke's reasons for believing this to be a case of death from air embolism, introduced through the uterine sinuses, and not due to gas-forming bacteria, are: First, the very sudden death which occurred in a woman previously in perfect health; second, the use of a syringe containing air and water under pressure, the nozzle closely fitting the os; third, the presence of such a large quantity of air in the dilated uterus and Fallopian tube; fourth, the black fluid blood everywhere filling the venous system, the arteries being comparatively empty; fifth, the flaccid heart containing blood admixed with air, which was also found in other organs of the body; and sixth, the fact that no air was found in the placental tissue nor in the cord, nor in the fetus.

Lancet Clinic, Cincinnati.

December 15.

27 Diagnosis and Treatment of Chronic Ulcer of the Stomach. J. H. Schroeder, Cincinnati.
28 *Percussion-Tenderness—A Symptom of Value in the Diagnosis of Pulmonary Tuberculosis. S. Iglauer, Cincinnati.

28. **Percussion Tenderness in Tuberculosis.**—For the past several years Iglauer has made it a regular custom to look for this symptom, and has found it in the vast majority of consumptives examined. It is constantly present, even where the other physical signs are well marked, but in early cases, when the signs are indefinite, tenderness is often of more value than dulness itself. Occasionally a tender area will disclose a tubercular focus which otherwise would have been entirely overlooked. In some cases with well-marked signs at one apex a beginning lesion was found in the other apex, as confirmed by tenderness. Iglauer noted this symptom in at least eight incipient cases. In many of the cases the diagnosis was made before the bacillus could be found in the sputum. In a series of twenty-three hospital cases thus systematically examined, the symptom was present in fifteen, doubtful in one, and absent in seven.

St. Louis Medical Review.

December 15.

29 Influence of the Ductless Glands on Diseases of the Metabolism. Diabetes, Obesity and Gout. A. Lorand, Carlsbad, Austria.
30 Pathologic and Clinical Diagnosis of Sarcoma. (To be continued). M. G. Seelig, St. Louis.

West Virginia Medical Journal, Wheeling.

December.

31 Prejudice. C. H. Maxwell, Morgantown.
32 Acute Appendicitis. Etiology, Symptomatology, Diagnosis and Treatment. J. E. Rader, Huntington, W. Va.
33 Puerperal Fever, History, Etiology, Diagnosis and Treatment. O. L. Perry, Elkins, W. Va.
34 A Review of Pneumonia. R. H. Edmonson, Morgantown.
35 Indications for Premature Delivery. C. L. Holland, Fairmont, W. Va.
36 Cataractous Families. J. L. Dickey, Wheeling.
37 *Medical Legislation in West Virginia. G. D. Lind, New Richmond.

37. **Medical Legislation in West Virginia.**—Lind reviews the legislation in force and urges on the profession the absolute necessity of further legislation. He discusses the personnel and functions of examining boards in general and the scope of the state medical journal. He says that one reason for patronizing state journals instead of private ones is the fact that much of the matter in private journals is copied from other journals and abstracts of the same appear in THE JOURNAL A. M. A. His idea of a medical journal to be of real value to the physician is that it should contain nothing that is in THE JOURNAL A. M. A., for every physician should take that, and everything of value that the state can produce in the way of medical knowledge. Such a journal could wield an immense influence on legislation and its enforcement.

Annals of Surgery, Philadelphia.

December.

38 *Early Operation in Cases of Intracranial Injury. C. Phelps, New York.
39 *Fracture of Base of Skull. L. R. G. Crandon and L. T. Wilson, Boston, Mass.
40 Technic of Operations on the Head and Neck. G. Crile, Cleveland, Ohio.
41 Bone Metastases of Hypernephroma. C. L. Scudder, Boston, Mass.
42 Cancer of the Gall Bladder and Ducts. J. G. Sherrill, Louisville.
43 Tumors of the Mesentery. L. G. Bowers, Dayton, Ohio.
44 Why Gastroenterostomy is Not a Harmless Operation. M. M. Portis, Chicago.
45 Surgical Treatment of Perforating Gastric Ulcer. R. G. Le Conte, Philadelphia.
46 Acute General Peritonitis Without Demonstrable Lesion. E. Martin, Philadelphia.
47 Aneurismal Varix. J. C. Stewart, Minneapolis.
48 Coxa Vara. R. J. Behan, Pittsburg, Pa.

38. **Early Operation in Intracranial Injury.**—According to Phelps epidural hemorrhage demands operation in such cases as do not obviously tend to spontaneous recovery, or in which a fatal issue is so imminent as to permit no question. Phelps says that meningeal contusion, when productive of symptoms, either can not be diagnosticated from an epidural hemorrhage, or is indistinguishable from the diffuse cerebral edema with which it is always associated. A recognized intracranial hemorrhage may be expected to be of pial origin when associated with cerebral lesions, and will indicate operation when the cerebral lesion is regarded as of minor importance. Cerebral contusions may be of two kinds: (a) Limited—no tendency to a fatal termination, and never suggests operation. (b) Diffuse—two classes of cases; in one, a vascular disturbance incapable of self limitation, not markedly involving the integrity of the cerebral cells, but tending to mechanically destroy their function; in the other, a progressive disintegration of cellular structure, an active process due to chemical changes, which natural forces prove insufficient to restrain. In the first, operation is theoretically indicated; in the second, in view of the origin and nature of the pathic changes, there is no reason to suppose a simple relief of pressure will stay their progress. In neither is it possible to fix the time when operation may so supplement natural forces and simpler remedial measures as to increase the patient's chances of recovery. In mixed cases—cerebral contusion complicated with pial or epidural hemorrhage—operation should depend on the estimated relative importance of the lesions; and the correctness of this estimate must depend on the acumen and experience of the surgeon.

39. **Fracture of Base of Skull.**—Crandon and Wilson studied the records of 530 cases of fracture of the skull treated in the Boston City Hospital from June, 1864, to September, 1906, a period of 42 years. As the result of this study they contend that fracture of the base should at least be treated with the conservatism which goes with the care of other fractures. Although these fractures are not open to the eye or the finger, they are even more liable to mobility and consequent injury of delicate adjacent parts than are fractures of the skeletal bones. Although fixation of basal fractures is not possible by any accurate application, because in the first place the line of fracture is not known, and in the second place may extend in several directions, it is nevertheless presumptive that a patient in bed would be less liable to jar or other kinds of force which might stir up the fracture or dislocate clots. Crandon and Wilson urge as routine treatment in all cases of even suspected fracture of the base of the skull, rest in bed for full three weeks. Such a patient ought to be in a separate or small, dimly-lighted room, where little can attract his attention. He should have a single low pillow, or none, as he prefers. He should have as few visitors as possible, should take nourishment still lying down, and have practically nothing to attract his attention or to cause any excitement. Food should be easy to digest, cathartics should be used freely to prevent the least strain at stool, which causes cerebral congestion. Headache should be controlled by whatever sedative seems to work best in the given case, and used even to an extent to keep the patient more or less somnolent.

American Journal of Obstetrics, New York.

December.

49 *Five Cases of Acute Pancreatitis. J. F. Erdmann, New York.
50 *Peritoneal Adhesions. R. T. Morris, New York.
51 Pubiotomy and Its Relative Indications. E. B. Montgomery, Quincy.
52 *Utilization of the Broad and Round Uterine Ligaments in Supravaginal Hysterectomy. W. B. Dorsett, St. Louis, Mo.
53 Contraction and Shortening of the Uterosacral Ligaments. D. H. Craig, Boston.
54 Differential Diagnosis of Splenic and Renal Tumors. C. G. Cumston, Boston.
55 *Prolapsed Ovaries. W. S. Gardner, Baltimore.
56 Abnormality in Amniotic Secretion in Its Relation to Fetal Malformation. J. B. Cooke, New York.
57 Induced Labor as a Conservative Operation in Contracted Pelvis. E. E. Morse, Washington, D. C.
58 *Systematic Weighing of Infants a Guide to Normal Growth. S. S. Adams, Washington, D. C.
59 *Use of an Intercutaneous Stitch in Plastic Operations on the Perineum. B. M. Anspach, Philadelphia.
60 Two Cases of Intestinal Diverticula. C. F. Kivlin, Troy, N. Y.

49. **Five Cases of Acute Pancreatitis.**—None of the five cases reported by Erdmann had at any time any evidence of sugar in the urine, frequent analyses being made in four of the cases. He calls attention to some of the pronounced symptoms; the marked pain at the onset; sharp intoxication of some of these cases; dyspnea and lividity seen in many; constant splitting backache.

50.—See THE JOURNAL, Oct. 6, 1906, page 1126.

51.—Id., Dec. 1, 1906, page 1850.

52.—Id. Oct. 13, 1906, page 1219.

55. **Prolapsed Ovaries.**—The operation that Gardner has been doing for more than a year in cases of prolapsed ovary consists of shortening the elongated ovarian ligament by a couple of fine silk stitches. The first one takes a light, but firm, hold in the uterus, near the lower border of the ovarian ligament; it is then continued through a portion of the ligament and inserted firmly into the ligament near the ovary. The second stitch is placed in the same way, but near the upper border of the ligament. When these stitches are tied the ovary is brought close up to the uterus, but still remains a limited mobility independent of the uterus, and a complete mobility with the uterus.

58. **Systematic Weighing of Infants.**—Adams emphasizes the importance of noting the daily or weekly gain or loss in weight, as by this means the nutrition of the infant is best determined. This can be accomplished by systematically and accurately weighing the infants at stated intervals.

59. **Intercutaneous Stitch in Plastic Operations on Perineum.**—The plan adopted by Anspach is to perform the operation (Hegar or Emmet) according to the customary technic up to the insertion of the external sutures, which are usually introduced from the skin surface of the perineal body. By this new method the external sutures are introduced and brought out just within the skin borders of the denudation. After these sutures are tied, the intercutaneous stitch is employed, running from above downward. The advantages of an intercutaneous stitch are as follows: The crown sutures are well protected from infection by the neatly approximated skin. Catgut sutures may be used throughout the operation, so that there are no sutures which require removal—a matter of considerable importance to many patients. The pressure necroses and the pitting of tissue commonly observed when the usual external stitch is used are entirely avoided.

Journal of the Minnesota State Medical Association and the Northwestern Lancet, Minneapolis.

December 15.

61 Prevention and Treatment of Cancer. R. E. Farr, Minneapolis.
62 Early Diagnosis of Carcinoma. J. F. Corbett, Minneapolis.
63 *Gastric Ulcer and Cancer. C. Graham, Rochester.
64 An Alleged Neoplasm. W. N. Porteous, Minneapolis.

63. **Gastric Ulcer and Cancer.**—Graham presents the past year's experience bearing on the etiologic relationship existing between ulcer and cancer of the stomach. In his series of 82 cases the males and females ran in proportion of 4 to 1, and ranged in age from 29 to 76 years, the average being a little over 50. About three-fourths of the whole number presented themselves for amelioration of symptoms that had been pressing, for one year or less, that is, malignant manifestations had been present for only one year or less, the average being a little less than five months. Twenty-three of the number presented long histories, complained of malignant symptoms only a year or less, the average in this number being a trifle more than five months. Pain was rather constant. In eight the histories did not state either way; one said no pain; the remainder (73), openly declared for pain, most of them complaining rather bitterly. Vomiting was not recorded in 11 histories; 3 stated no vomiting, while the greater number (68), complained more or less severely. In 42 the lesion was situated at the pylorus or lesser curvature, in 3 at the cardia. The location was not recorded in many of the inoperable cases, but the symptoms, for which the operation was undertaken, most often spoke for the pyloric end or lesser-curvature location. Of the whole number operated on, 67 had test-meals and other routine stomach examinations, chemical and physical. Tumor was present 27 times and doubtful in 3 more. Dilatation was present 54 and obstruction 36 times. In 32 cases free hydrochloric acid was present, ranging from 1 to 50 acidity; combined in 32, lactic 42, fatty 19, both hydrochloric and lactic, found 13 times. Blood was found often. There were 39 cases in which a portion of the stomach was removed for examination. In over half (54 per cent., 21 in number) the pathologic evidence was good that cancer had developed on an old ulcer base; in one-fourth (25.60 per cent., 10 cases) the evidence was fair that the same was true, while 8 patients gave no evidence of preceding ulcer irritation. Then in over three-fourths (79.5 per cent.) the pathologic evidence was good or fair that ulcer was first as a cause.

Journal of the Kansas Medical Society, Lawrence.

December.

65 Significance of Sugar in the Urine in Surgical Patients. J. G. Sheldon, Kansas City.
66 *Diabetes Mellitus and Its Curability. C. C. Seabrook, Burlingame, Kansas.
67 Bilateral Deformity from Costal Cartilage Fracture. A. L. Skoog, Parsons, Kan.

66. **Diabetes Mellitus and Its Curability.**—Seabrook records the histories of eight patients, all of whom were ordered restricted diets, one that appeared best to meet the indications in each case. Some were more stringent than others, while in all the restrictions were only so far as was absolutely necessary to maintain strength. During the past two years Seabrook has had 11 patients with glycosuria under observation, some of whom were not under treatment. Of this number three have died, one a child of 3 years, another a woman aged 30, and another about 20 years of age. Seabrook is positive that the greater number would have received more benefit than they did had they continued treatment for a longer period of time. In one family the father and mother, two sons and a daughter have glycosuria, only one of them received treatment with good effect. The others are always complaining and are easily depressed by adverse influences.

Journal of the South Carolina Medical Association, Greenville.

November 21.

68 *Report of 217 Cataract Operations. C. W. Kollock, Charleston.
69 *Inflammatory Nasal Obstruction as an Etiologic Factor in the Production of Sputa. W. P. Porcher, Charleston.
70 Perineal and Cervical Infection as Factors in the Production of Gynecic Surgery. A. B. Knowlton, Columbia.
71 Value of Bloodletting in Pneumonia. B. F. Wyman, Aiken, S. C.

68. **Cataract Operations.**—Out of the 217 operations for cataract done by Kollock, 205 were successful, 8 were lost, 3 were doubtful, and 1 patient was found to have an intraocular growth that rapidly caused blindness after the operation, though it did not interfere with the healing of the wound.

69. **Nasal Obstruction and Sputa.**—Porcher concludes his observations as follows: 1. As a result of inflammatory obstructions in the nose, posterior nasal secretions do pass down into the sacculi laryngis and are expectorated by the contraction of the muscles of vocalization. 2. Nasal obstructions are often overlooked among the etiologic factors in the production of profuse expectoration, diseases of the middle ear, aural polypi, facial neuralgia, refractive errors, and other pathologic conditions in the eye as well as many reflex neuroses and other diseases of the adjacent organs.

American Medicine, Philadelphia.

November.

72 Value of Rectal and Colon Irrigation in Nephritis. Some Physiologic Experiments. R. C. Kemp, New York City.
73 Iodin and Some of Its Uses in Surgical Work. J. E. Cannaday, Hansford, W. Va.
74 Diagnosis of Incipient Tuberculosis. J. B. Huber, New York City.
75 A Professional and Successful Life Wrecked by Ill-Fitting Glasses. G. M. Gould, Philadelphia.
76 Two Cases of Vaginal Cesarean Section for Eclampsia with Recovery. J. F. Moran, Washington, D. C.
77 Prevention of Postoperative Adhesions. A. G. Ellis, Philadelphia.
78 *Anatomy and Surgery of Meckel's Diverticulum. R. Winslow, Baltimore.
79 Persistent Tinnitus Aurium Cured by Eustachian Inflation with Heated Dry Air. E. L. Vansant, Philadelphia.
80 *A Simple Method for Putting the Intestine on the Stretch to Facilitate End-to-End Anastomosis. T. H. Potter, Detroit, Mich.

78. **Meckel's Diverticulum.**—Winslow reports four cases. 1. Acute peritonitis due to a gangrenous Meckel's diverticulum, followed by death. 2. Lump in the right side in which Meckel's diverticulum was found. Operation. Recovery. 3. Intestinal obstruction from Meckel's diverticulum. Death. 4. Intestinal adhesions and Meckel's diverticulum. Operation. Recovery.

80. **End-to-End Anastomosis.**—The method employed by Potter is as follows: The only instruments required are those used in the ordinary abdominal operation, with the exception of two plates or splints which may be made from metal, hard rubber, or wood. Potter's are constructed for the most part

from berry boxes. If the plates are made from hard rubber or wood, care should be used to see that the corners are rounded to prevent undue pressure at any one point of bowel, and the edge of the plate which comes in contact with the bowel should be slightly beveled. The plates are from 1.1 to 1.3 inches long, by four-tenths of an inch wide, and about one-twentieth of an inch thick. Two holes, one-fourth of an inch apart, are drilled through the plate, near the beveled edge, in which is placed a silk suture forming a loop of about two inches in length. The intestine is brought out of the abdominal wound, but before severing, an attempt is made to force the intestinal contents out of the portion of the bowel to be opened. An assistant should grasp it about five or six inches from the point where the incision is to be made to prevent the leakage of the intestinal contents into the already emptied portion of the bowel. The mesentery is now perforated between the large vessels which can readily be recognized. A strand of gauze is tied around the intestine just firm enough to prevent leakage, and all exposed surfaces are protected by moist aseptic gauze or towels. The plates with their flat sides placed together are inserted into the cut end of the bowel, the loops being pulled on, the stretching, however, must not exceed the physiologic limit. While in this position the plates are caught in the jaws of a long hemostatic clamp, a long narrow jaw being preferred, and it should enter the bowel opposite the mesenteric attachment. The loops are removed from the plates, the edges of the bowel brought in apposition, and a suture placed in the bowel at either edge of plate to keep it in correct position while the remaining sutures are being placed. The splints are p ssed from the bowel in from two to five days.

Medicine, Detroit.

November.

81 Aids in Teaching Climatology and Climatotherapy. G. Hinsdale, Hot Springs, Va.
82 Electives in the Medical Course and Preparation for Specialism. A. L. Benedict, Buffalo.
83 Early Cirrhosis of the Liver and Its Treatment. H. Richardson, Baltimore.
84 Rôle of the Medical Profession in Combating the Social Evil. J. M. Anders, Philadelphia.
85 Diagnosis of Carcinoma of the Stomach. E. K. Kerr, Chicago.
86 Further Observations on Citrate of Soda. J. W. Van Derslice, Chicago.

December.

87 *The Way of Infection in Tuberculosis. L. F. Flick, Philadelphia.
88 Case of Keratitis Disciformis. C. A. Veasey, Philadelphia.
89 Case of Fulminant Retrobulbar Neuritis. C. A. Veasey, Philadelphia.
90 Paralysis Agitans Without Tremor. A. A. Eshner, Philadelphia.
91 Rôle of Organic Phosphorus in the Treatment of Asthenic Conditions in Various Nervous Diseases. A. Gordon, Philadelphia.
92 Kleptomanias the Result of Fetishistic Impulses. W. L. Howard, Mossfell, Westboro, Mass.
93 Chlorosis and Its Treatment. G. F. Butler, Chicago.
94 Macroscopic Agglutination of the Typhoid Bacilli as a Diagnostic Test for the General Practitioner? A. M. Stober, Chicago.

87. **Way of Infection in Tuberculosis.**—Flick claims that if we wish to block the way of infection in tuberculosis, (1) we will have to control the exit of the tubercle bacillus from hosts already infected. This means that every individual who has tuberculosis must be brought under observation and taught how to devitalize all tuberculous matter given off. (2) We must endeavor to sterilize all enclosures which have been infected with tuberculous matter as well as those things which have been infected by reason of being within those enclosures or being used by persons who have tuberculosis. This is a herculean task, which can not be accomplished immediately. Until it can be accomplished every effort should be made to have people ventilate their houses and to expose them as much as possible to fresh air and sunlight. (3) We must look after the children who are exposed to tuberculosis; (a) through contact with those who have the disease; (b) through living in enclosures in which the disease has existed; and (c) through infected food. Such children should be placed under better environments, be given food which is sterile from tubercle bacilli, and be kept well nourished. Special supervision should be given to their upper air-passages and buccal cavities, and so far as possible these parts should be kept in a perfectly healthy condition.

Therapeutic Gazette, Detroit.

November 15.

95 Results Obtained from the Radical Operation for Chronic Purulent Otitis Media. S. M. Smith, Philadelphia.
96 Treatment of Gonorrheal Urethritis by Iodid of Silver. G. P. La Roque, Richmond.
97 Treatment of Constipation Due to Atony of the Bowel. W. R. Jamieson, Torreon, Coah, Mexico.
98 Manitou, Colorado, as a Health and Bathing Resort. B. B. Creighton, Manitou, Colo.
99 Treatment of Neurasthenia. B. Oettinger, Denver.
100 Some Dietetic Errors and Their Effects. W. B. Stewart, Atlantic City, N. J.

Journal of the Minnesota State Medical Association and Northwestern Lancet, Minneapolis.

November 15.

101 Choreiform Manifestations in Middle and Advanced Life. A. S. Hamilton, Minneapolis.
102 Grave Errors in the Diagnosis of Typhoid Fever. S. P. Rees, Minneapolis.
103 Management of Pregnancy Complicated by Valvular Disease. L. Osborn, Mankato, Minn.

Fort Wayne Medical Journal-Magazine.

November.

104 Traumatisms of the Eye and Its Appendages. A. E. Bulson, Jr., Ft. Wayne.
105 Experience with the Tuberculin Test. C. G. Beall, Ft. Wayne.
106 Duodenal Ulcer. M. F. Porter, Ft. Wayne.
107 Duodenal Ulcer, Some of Its Aspects. G. W. McCaskey, Ft. Wayne.

Virginia Medical Semi-Monthly, Richmond.

November 23.

108 Cases of Apparently Hopeless Eye Diseases Benefited by Treatment. J. H. Claiborne, New York, N. Y.
109 Two Cases of Aneurism Treated by Operation. A. S. Richardson, Okeefe, W. Va.
110 Prevention and Treatment of Incipient Tuberculosis. W. Porter, St. Louis, Mo.
111 Puerperal Eclampsia. J. B. Halligan, Smoky Ordinary, Va.
112 Treatment of Hemorrhoids. L. Eliot, Washington, D. C.
113 Uric Acid and Apple Brandy. A. Memminger, Charleston, S. C.
114 General Consideration of Chronic Nephritis. T. A. Parker, Richmond.
115 Case of Appendicitis with Complications. W. S. Slicer, Cripple Creek, Va.
116 Multiple Intussusceptions Caused by Castor Oil. W. A. Strother, Lovington, Va., and J. W. Cringan, Arrington, Va.

Wisconsin Medical Journal, Milwaukee.

November.

117 A New Method for the Reduction of Fractures of the Lower Extremity. C. H. Lemon, Milwaukee.
118 State Provision for Epileptics. W. F. Wegge, Milwaukee.
119 Negligence of the Profession in Its Duty to Secure Temporary Detention Quarters for the Alleged Insane. J. P. McMahon, Union Grove, Wis.
120 The Prostate Gland—Its Principal Affections, with Some Observations on Diagnosis and Treatment of Hypertrophy. V. F. Marshall, and E. W. Quick, Appleton, Wis.

Annals of Gynecology and Pediatry, Boston.

November.

121 Ectopic Gestation. (To be continued.) H. F. Quackenbos, New York City.
122 Cervix Uteri Before, During and After Labor. A. E. Gallant, New York.

Northwest Medicine, Seattle, Washington.

November.

123 Local Anesthesia in Its Present Development. B. Hahn, Tacoma.
124 Necessity for State Control of Public Water Supplies and Sewage Disposal. E. E. Heg, Seattle.
125 Id. W. J. Roberts, Pullman, Wash.

Southern California Practitioner, Los Angeles.

November.

126 Chloroform, Its Indications and Advantages. D. D. Thornton, Los Angeles.
127 Ether. H. G. McNeil, Los Angeles.
128 Anesthol. J. L. Hagadorn, Los Angeles.
129 Spinal Anesthesia. F. S. Dillingham, Los Angeles.
130 Scopolamin-Morphin Anesthesia. Z. T. Malaby, Pasadena.
131 Complications of Anesthesia. F. D. Bullard, Los Angeles.
132 Inaugural Address, at the Opening of the Twenty-Second Annual Session of College of Medicine of the University of Southern California. W. D. Babcock, Los Angeles.
133 Climate. B. Reed, Los Angeles.
134 Neoplasms of the Ovaries. J. M. Burlew, Santa Ana.
135 Sanitary Inspection. J. L. Choate, Los Angeles.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

December 1.

1 *Public Aspects of the Prevention of Consumption. R. W. Philip.
2 Comparative Frequency of Impaired Nasal Respiration as an Antecedent to Pulmonary and to Extra-Pulmonary Tuberculosis. W. C. Rivers.

3 Treatment of Phthisis by Sanatorium Methods. E. W. Diver.
4 Case of Hemopytsis. C. W. Branch.
5 *Treatment of Chronic Constipation. W. K. Sibley.
6 *Use of Digitalis in Valvular Disease of the Heart. E. H. Colbeck.
7 A Consideration of the Poisons of Amanita Phalloides. W. W. Ford.
8 *Application of Physical Chemistry to Serum-Pathology. W. H. Manwaring.
9 Gastric Erosions. C. H. Miller.
10 *Study of the Influence Exerted by a Variety of Physical and Chemical Forces on the Virulence of Carcinoma in Mice. G. H. A. Clowes.
11 Investigations of the Imperial Cancer Research Fund. E. J. Bashford.
12 Evidences that Infected Cages Are the Source of Spontaneous Cancer Developing Among Small Caged Animals. H. G. Gaylord.
13 Study of the Biology of Tumor Cells. S. P. Beebe and J. Ewing.
14 Structural Continuity in New Growths. F. G. Bushnell.
15 Rarity of Cancer Among the Aborigines of British Central Africa. H. Hearsey.
16 Beriberi. H. Wright.
17 Infection and Intoxication in Experimental Glanders. M. Nicolle.
18 Hypersensibility and Immunity in Experimental Glanders. M. Nicolle.
19 Relapsing Fever and Spirochetes. F. G. Novy and R. E. Knapp.
20 Rhinosporidium Kinealyi (Minchin). J. M. Beattie.
21 Virus of Smallpox and Vaccinia. W. E. de Korté.

December 8.

22 The Borderland of Epilepsy. W. R. Gowers.
23 Therapeutic Value of Complete Vocal Rest During the Sanatorium Treatment of Laryngeal Tuberculosis. F. Semon.
24 Present Views on Diseases of the Joints. H. Marsh.
25 Sprains and Their Consequences, Mainly in Relation to Treatment. W. Bennett.
26 Errors of Vision as a Factor in Motor Car Accidents. C. Clements.

1. **Prevention of Consumption.**—Philip gives considerable space to the discussion of a tuberculosis dispensary and the sanatorium treatment of consumption, indicating the leading features of each factor in a scheme of organized and co-ordinated operations against tuberculosis. He regards the dispensary as the central institution from which patients are sent to hospitals, sanatoriums and colonies.

5. **Treatment of Chronic Constipation.**—In this paper Sibley reviews the treatment now in vogue, dividing it into the external and the internal. The former consists of what is now called physical therapeutics, including the use of electricity. The internal treatment is subdivided into diet, drugs, and the use of enemas.

6. **Digitalis in Valvular Heart Disease.**—Colbeck says that digitalis should seldom, if ever, be given in cases of aortic regurgitation which has developed during or after middle life, since the ventricular wall is seldom perfectly sound under these circumstances; and never in patients who give evidence of myocardial degeneration or disease. If complete rest is obtained, digitalis is permissible and beneficial up to a certain point in young, otherwise healthy adults showing signs of circulatory failure, more especially when the aortic lesion is combined with mitral incompetence. The drug should be discontinued for some time before exercise is resumed, and this rule should be rigidly observed. Neglect of this precaution might be followed by rapid failure of the ventricle and sudden death. Theoretical considerations suggest that the utility of digitalis in aortic incompetence is strictly limited. It may be accepted as a good working rule that digitalis is beneficial in cases of aortic incompetence proportionally to the magnitude of the stress which has led to failure of the heart and vice versa. Colbeck says that digitalis is contraindicated in aortic stenosis apart from the appearance of cardiac failure. He endorses the use of digitalis in cases of mitral insufficiency, but in mitral stenosis he says that it can be of no benefit in the absence of failure of the right ventricle, and in this event, so long as the pulmonary blood pressure has been raised to the point at which the maximum charge of blood is delivered to the left ventricle, the drug will again act prejudicially.

8. **Physical Chemistry and Serum Pathology.**—Manwaring sums up the main conclusions in his paper as follows: 1. The physico-chemical law proposed for the absorption of the specific thermostable substance of hemolytic serum by blood corpuscles can neither be proved nor disproved, due to changes in the chemical nature of heated hemolytic serum after exposure to corpuscles, and the consequent impossibility of at present applying analytical methods to the phenomenon. 2. The physico-chemical law proposed for the interaction of the specific thermostable and thermolabile substances of hemolytic serum can neither be proved nor disproved, due to the impossibility of varying the amount of either of these substances in a serum experiment, without producing indeterminate changes in the non-specific auxilytic and antilytic substances necessarily present in such serum. 3. The physico-chemical law proposed for the interaction of diphtheria toxin and antitoxin of measuring by animal experiments the amount of free toxin present in a toxin-antitoxin mixture, if the physico-chemical law itself holds good. Manwaring emphasizes, however, that these facts do not prove that physical chemistry is not applicable to serum phenomena.

10. **Virulence of Carcinoma in Mice.**—From experiments conducted on 7,000 mice Clowes draws the following conclusions:

1. Primary tumors are only transplanted with great difficulty; after the first generation the yield of tumors gradually increases until a maximum virulence is attained, which subsequently remains fairly constant for a considerable period of time.

2. Increase in virulence of a tumor strain is invariably associated with an increased rate of growth of the individual tumors.

3. The proportion of tumor mice recovering spontaneously in any series is apparently inversely proportional to the virulence and speed of development of the tumors of that series.

4. The larger the dimensions actually reached by a tumor the smaller are the chances that it will recover spontaneously.

5. Incubation of tumors possessed of a low grade of virulence, previous to injection into mice, is found to exert a stimulating effect, larger yields of tumors being obtained than in control series.

6. The resistance of tumor cells to mercuric chlorid and other inorganic disinfectants is very high. It was found possible, for example, to destroy the bacteria present in badly-infected tumors by means of potassium cyanid without seriously affecting the virulence of the tumor on subsequent transplantation.

7. The chemical analysis of over 300 tumors shows a relatively high potassium and nucleo-proteid content, associated with high virulence and rapid development, and a low potassium and high calcium content, associated with low virulence and relatively slow development.

8. The principal evidence of the existence of immunity against cancer is as follows: Spontaneous recovery of mice from true tumors actually occurs. Those mice which have recovered are not reinoculable with tumor materials possessed of the same degree of virulence as that previously employed, and exhibit in addition a considerable immunity to subsequent injections of far more virulent strains. The reinoculation of mice which have failed to develop fatal tumors shows in our experience a great reduction in the proportion of tumors, and inoculation for a third time has so far failed to be productive of a single tumor. The serum of recovered mice apparently exerts a definite though slight effect on the small tumors in other mice when directly injected, and also on tumor materials when admixed previous to inoculation. Mice on which tumors are already developing are, with a few exceptions, immune to subsequent inoculation, even with a more virulent tumor, indicating the production of immune forces in the serum antagonistic to the development of cancer.

9. The injection of tumor materials incubated at such temperatures as to render development impossible, or of tumor materials previously treated with chemicals at such a concentration as to inhibit development, fails entirely to confer immunity on the mice so treated.

10. The treatment of mice with increasing doses of nucleoproteids (extracted from the most virulent tumors) at stated intervals of time has so far failed to confer an immunity.

11. The process of immunizing mice against cancer appears to be analogous to that of vaccination against smallpox, the animals which recover from an attenuated form of the disease developing an immunity capable of protecting them in the large majority of cases against injections of a more virulent cancer stain than that originally employed.

The Lancet, London.

December 1.

27 Tobacco Amblyopia. P. Dunn.
28 Tropical Dysentery. R. J. Blackham.
29 Phlyctenular Ophthalmia. J. B. Nias and L. Paton.
30 Cerebrospinal Meningitis in the Sudan. C. Nedwill.
31 Indigestibility of Plummer's Pill. J. Sawyer.
32 *Lepra Tuberosa; Treatment with Chaulmoogra Oil. J. A. Thompson.
33 Extensive Rupture of the Trachea with Complete Detachment of the Left Bronchus Without External Injury. J. L. Barford.

December 8.

34 Case of Lingual Goiter. G. H. Makins.
35 Further Observations on Endemic Goiter. R. McCarrison.
36 Water Gas, Carburetted Water Gas and Carbon Monoxid Poisoning. J. Glaister.
37 A New Synthesis of Tyrosine. P. W. Latham.
38 Case of Epileptic Idiocy Associated with Tuberose Sclerosis of the Brain. M. B. Dodson.
39 Coincident Acute Appendicitis and a Twisted Ovarian Pedicle. J. Cahill and W. H. Bennett.
40 Influence of an Excessive Meat Diet on the Osseous System. D. C. Watson.

32. **Chaulmoogra Oil in Leprosy.**—In the case of tuberculous leprosy reported by Thompson, the patient was under observation for about two years, during which time he was given chaulmoogra oil, beginning with 45 minim doses taken three times a day; he was given as much as 315 minims a day. Thompson notes, however, that whatever the value of the oil as a remedy for leprosy, it would not have produced the excellent results in his case unless the patient had possessed an unusual inherent power of combating the infection.

Journal of Tropical Medicine, London.

November 15.

41 *Malaria in Greece. R. Ross.
42 Operation Leucocytosis. P. N. Gerrard.

December 1.

43 Human Spirollosis in Loanda (Angola). A. de S. M. Leitao.

41. **Malaria in Greece.**—Ross describes his experiences in the study of malaria in Greece. He says that malaria in that country is not of a benign type. Pernicious attacks are very common, and blackwater fever is extremely common. All species of the parasites are found. The mild tertian parasite occurs most frequently, the so-called malignant species next commonly, and the quartan least of all. Out of 1,839 mosquitoes concerned in the production of malaria, 1,778 were found to be *Anopheles maculipennis*, 21 to be *Anopheles bifurcatus*, and 20 to be *Pyretophorus superpictus*. The Kopaik Plain, formerly a marsh, but now drained and cultivated to its fullest extent, is traversed by several small streams which are torrents in winter but in summer become trickles of water with marshy borders. In May and June, when Ross visited the district, he could find no mosquito larvæ, though some have been found since, with the advance of the dry season. In addition to the streams there are a series of small "borrow-pits" made by engineers in constructing a railway embankment, and in these Ross found the larvæ of *Myzomyia maculipennis*, a well-known carrier of malaria.

The Practitioner, London.

November.

44 Valvular Disease of the Heart. R. Crawfurd.
45 *Liver as a Toxin Filter. W. Hutchinson.
46 *Serum Therapy. W. D. Emery.
47 Diagnosis of Pleural Effusion and of Empyema in Children. G. S. Middleton.
48 *Mortality in Infancy. T. Divine.
49 *Physical Methods of Treating Heart Disease. A. G. Bennett.
50 Recent Literature on Arthritis. F. J. Poynton.
51 *Prophylactic Treatment of Postpartum Hemorrhage. G. W. Fitzgerald.
52 Case of Sarcoma of the Temporal Dura Mater which Simulated a Suppurative Mastoiditis. W. Dowrie.
53 Nature of Malignant New Growths of the Testis. F. G. Bushnell.
54 Immediate Treatment of Ruptured Perineum. D. T. Barry.

45. **The Liver as Toxin Filter.**—The studies made by Hutchinson has convinced him that the liver is the principal protector of the body tissues against toxins from whatever source, and that the question of the degree of systemic invasion is largely a question of the degree to which it can rise to emergency.

46. **Serum Therapy.**—Emery continues his review of the use of serums in the treatment of disease. In the present article he considers the serum therapy of scarlet fever, rheumatism, anthrax, typhoid, plague, pneumonia and dysentery.

48. **Mortality in Infancy.**—Divine discusses the report of the registrar general of England and Wales with reference to the wasting diseases of childhood.

49. **Physical Methods in Treating Heart Disease.**—The Nauheim bath is the subject under discussion by Bennett, who summarizes its action as follows:

1. A general dilatation of the capillaries and smaller blood vessels of the surface, with consequent relief to ventricular contraction.
2. A slowing of the pulse with more complete emptying of the ventricles.
3. An increase in the tone of the capillaries, with probable increase in the force of their rhythmical contractions, causing additional volume and rate of the distal circulation.
4. A floating upward of the heavy abdominal viscera by hydrostatic pressure.
5. A reflex nervous effect on the cardiac ganglia, whereby the ventricular power is increased and regulated.
6. The action of the skin and kidneys is also increased.
7. Certain beneficial trophic effects, in cases of anemia, neurasthenia, osteoarthritis, diseases of the spinal cord, and some cases of peripheral paralysis.

51. **Prophylaxis of Postpartum Hemorrhage.**—Fitzgerald speaks of the methods employed for the prevention of postpartum hemorrhage during the past ten years at the Rotunda Hospital, Dublin, in over 30,000 cases of labor. Hemophilia, hydramnios precipitate labor and the management of the third stage are the topics considered. Nothing new is offered.

Annales de l'Institut Pasteur, Paris.

Last indexed, XLVII, page 1599.

55 (XX, No. 10, Pp. 785-880.) Glanders in Guinea-pig. M. Nicolle. (Morve exp. du cobaye.)
56 Neurotoxic Sera and Lesions They Induce. P. F. Armand-Delille. (Sérums névrotoxiques et les lésions qu'ils provoquent.)
57 *Experimental Research on Syphilis. E. Metchnikoff and E. Roux. (Etudes exp. sur la syphilis.)
58 New Acetone-producing Microbe. Bréaudat. (Nouveau microbe producteur d'acétone.)
59 *Mechanism of Destruction of Nerve Cells. Y. Manouélian. (Mécanisme de la destruction des cellules nerveuses.)
60 Relations Between Tropical, Quartan and Tertian Fever. Thiroux. (Observations prises au Sénégal.)

57. **Vaccination and Medical Prophylaxis Against Syphilis.**—Metchnikoff and Roux announce that they have succeeded in establishing the attenuation of human syphilitic virus by passage through small monkeys, opening a prospect for successful vaccination against syphilis. They further reiterate their former announcements in regard to the efficacy of a 25 or 33 per cent. calomel-lanolin salve as a means of antisyphilitic prophylaxis. The student, Maisonneuve, inoculated with human virus and then treated with this salve, has been absolutely free from any sign of syphilis for nearly a year to date. (This experience was described in THE JOURNAL for June 9, 1906, page 1779.) Another experience on man is reported in this present communication, which proves the attenuation of the virus by passage through monkeys. About a year ago one of the assistants in the research, free from the slightest syphilitic taint, accustomed to examine the inoculated monkeys every day, noticed a small ulceration on his lower lip. He feared accidental contagion from the inoculated monkeys, but physicians consulted could find no evidence of syphilis in the ulceration. To ease his mind, monkeys were inoculated with scrapings from the lesion. In due time the monkeys developed typical syphilitic lesions at the point of inoculation, with numbers of the spirochetes. The assistant has been kept under the closest supervision by Fournier, but nothing has been observed to justify antisyphilitic treatment, no enlargement of the glands nor other sign of syphilis, and yet his lesion transmitted syphilis to small monkeys. Inoculation of anthropoid apes was constantly negative. This is accepted as evidence that the passage of human virus through the lower monkeys attenuates its virulence so that it fails to produce the typical syndrome when injected into man or the higher monkeys, inducing merely a reaction similar to that of cowpox in relation to smallpox. This asumption has been confirmed by numerous experiences with monkeys. It has been found possible to keep the monkeys free from tuberculosis and in good health by excluding tuberculous monkeys and attendants and boiling the milk. The prospects seem promising that it will be possible to produce by several passages through the smaller monkeys, especially the *Macacus rhesus*, a vaccine which will prove as effectual for man as it has proved for anthropoid apes, and probably also in the case of the assistant mentioned above. He refuses to submit to the final test as to his being vaccinated, that is, to allow himself to be inoculated now with virulent human material as a test of his immunization. Another person, a man of 79, free from syphilis, allowed himself to be inoculated with virus from a human chancre, after five passages through the monkey organism. Two minute papules developed in the man at the points of inoculation, but soon subsided, and during the year since there have been no further signs of syphilitic infection.

59. **Mechanism of Destruction of Nerve Cells.**—Manouélian's research on the nervous systems of 2 persons who had succumbed to hydrophobia sustains Metchnikoff's assertions in regard to the destruction of nerve cells by phagocytosis. He was able to trace the macrophagocytes as they made their way into the nerve cells and attacked the pigmented granulations, and finally incorporated them, with the ultimate destruction of the nerve cell. Metchnikoff ascribes senile

changes to this same phagocytosis, the noble elements of the tissues being attacked and devoured by the macrophagocytes, with resulting sclerosis.

Centralblatt f. Chirurgie, Leipsic.

Last indexed, XLVII, page 1517.

61 (XXXIII, No. 40, Pp. 1073-1088.) Insoles of Celluloid, Felt and Rubber. Lengfellner. (Zelluloideinlagen in Verbindung mit Filz und Gummi.)
62 *Importance of Acute Angle at Knee in Cases of Contraction of Hip from Severe Coxitis. C. Lauenstein. (Zur Bedeutung der spitzwinkligen Stellung des Kniegelenkes in Fällen von Beugekontraktur des Hüftgelenkes durch schwere Koxitis.)
63 (No. 41, Pp. 1089-1112.) Surgical Treatment of Acute Appendicitis in Intermediate Stage. P. Fiori. (Die chir. Behandlung der akuten App. im Intermediärstadium.)
64 (No. 43, Pp. 1137-1160.) *To Ensure Bloodless Operations on the Skull. L. Kredel. (Ueber Blutleere der Galea bei Schädelop.)
65 (No. 44, Pp. 1161-1184.) *Ideal Truss for Infants. K. Fiedler. (Ein ideales Leistenbruchband für Säuglinge.)
66 (No. 45, Pp. 1185-1208.) Suprahyoid Pharyngotomy. von Hacker. (Zur Pharyngotomia suprahyoidea.)
67 Dorsal Fixation of Arm for Fracture of Clavicle. E. Cordua. (Dors. Fixation des Armes bei Schlüsselbeinbruch.)
68 *Preparation of Iodized Catgut. Burmeister. (Jodcatgutpräparation.)
69 (No. 46, Pp. 1209-1240.) *Catgut Sterilization. C. Stich.
70 *Peritoneal Plastic Operations with Isolated Pieces of Omentum. S. S. Girgolaff. (Perit.-Plastik mit isol. Netzstücken.)
71 Sterilization of Iodoform Gauze. Heyde. (Iodoformgazesterilisation.)
72 Apparatus for Aseptic Taking of Soap. C. Stich. (Apparat zur asept. Seifenentnahme.)
73 (No. 47, Pp. 1241-1264.) *Thread Drainage. H. Hans. (Fadendrainage.)

62. **Acute Flexion of the Knee with Untreated Coxitis.**—Lauenstein calls attention to the flexion of the knee in an acute angle which is a frequent accompaniment of severe inflammation of the hip joint that has not received proper treatment, the hip being left much contracted. In an experience with two patients he found that even moderate pressure on the leg, to reduce the contraction at the knee, caused fracture of the femur as the lower epiphysis became detached. He warns, therefore, that the knee should be left untouched for a time, and that attention should be directed exclusively to correcting the deformity at the hip joint as the bone is liable to be atrophied from the long disuse.

64. **To Prevent Hemorrhage in Operations on the Skull.**—Kredel passes a stout curved needle through the scalp about an inch from the line of the proposed incision and parallel with it, and ties the stout silk thread thus passed through the scalp over a narrow, grooved metal plate 1 cm. wide and 0.5 cm. thick, curved to fit to the skull. This is repeated with more plates until the incision is walled in on each side with a single row of these plates, each from 5 to 7 cm. in length. The thread is tied, lengthwise, tightly over each, which not only insures complete hemostasis, but holds the parts in their natural position. He has used somewhat similar plates to wall off the field of operation in extirpating angiomata on children.

65. **Ideal Truss for Infants.**—Fiedler's truss is a skein of white worsted, ordinary zephyr wool, with from 20 to 30 threads to the skein. He makes a loop of the cut skein, from 35 to 45 cm. long, tying the ends of the threads in a bunch with a strip of tape. The hernia is reduced and the loop of worsted is placed around the abdomen and the tied end drawn through the loop. A small pad of cotton is placed over the hernia and the crossed part of the loop is brought over the hernia and drawn taut, after which the tape is tied around the leg and fastened to the child's band. The elastic pressure of the worsted bandage prevents the tendency to hernia, and a clean one can be put on every time the child is dressed. The truss does not have to be removed when the child is bathed, and otherwise fulfills, he says, every requisite for an ideal truss for infants.

68. **Improved Iodized Catgut.**—Burmeister claims that his modification of Claudius' technic has a number of advantages, saying that catgut thus prepared never becomes friable, never swells when placed in aqueous solutions or living tissues, can be kept dry or in a fluid as desired, never has any irritating action, whether rinsed or not, while it is fully as strong as if not stronger than that prepared by other technics. His modification consists simply in the use of a mixture of 1 gm. metallic iodin in 15 c.c. or 22.5 gm. of chloroform instead of the ordinary solutions of iodin. The catgut is placed in this mixture for a week, when it is ready for use. The chloroform evaporates so rapidly that the catgut dries in a minute, but always retains its flexibility.

69. **Sterilization of Catgut.**—Stich describes the method of sterilizing catgut with silver nitrate which he has been using since 1903 to his great and increasing satisfaction. The catgut is placed in a cylinder filled with a 1 per cent. alcoholic-ammoniacal solution of silver nitrate, protected against light, in which it is left for from fifteen to thirty minutes. It is then rinsed in alcohol and exposed to sunlight in a second, sterile cylinder. The catgut is then transferred to a vessel containing alcohol and 10 per cent. glycerin, when it is ready for use.

70. **Isolated Pieces of Omentum for Peritoneal Plastics.**—Girgolaff relates that extensive experiments on dogs and cats showed that a large piece of omentum, 4 by 6 cm. square, can be used as an isolated patch to cover defects in the viscera, and that it heals readily into place without the formation of adhesions later. Circulation through the implanted piece was visible even in 24 hours. Plastic operations by this technic succeeded perfectly in operations on the stomach, large intestine and bladder, but he was less successful in operations on the small intestine. The isolated patches of omentum were found particularly useful after resection of the liver, the living tampons, as he calls them, proving particularly effectual in preventing after-hemorrhage or laceration from the stitches.

73. **Thread Drainage.**—Hans sutures the wound as usual, but leaves the ends of the ligature thread long and draws them out through the lower corner of the sutured wound. He has found that capillary attraction insures that the current is always outward. By this means he claims that he has all the advantages of drainage, with none of its disadvantages.

Centralblatt für Gynäkologie, Leipsic.

Last indexed XLVII, page 1517.

74 (XXX, No. 39, Pp. 1065-1088.) Automatic Retractor to Open Vulva and Vagina for Vaginal Operations. M. Blumberg. (Selbsthaltender Vulva- und Vulvovaginalspreizer für vag. Op.: Kolpotomien, digitale Ausräumung, Curettage, Dammrisse, Prolaps-Operationen usw.)
75 (No. 41, Pp. 1113-1144.) Birth Mechanism. R. Olshausen. (Zur Lehre vom Geburtsmechanismus.)
76 (No. 43, Pp. 1177-1208.) Gonococcus Peritonitis in Childbed. G. Leopold. (Zur Gon.-Peritonitis im Puerperium. Laparotomie. Drainage. Genesung.)
77 *Puerperal Morbidity at Zweifel's Clinic. T. Thies. (Fieber im Wochenbett, 1905.)
78 Roentgen Treatment of Severe Menorrhagia, Due to Myoma. Göri. (R.-Bestrahlung wegen starker, durch Myome hervorgeruf. Menorrhagien.)
79 (No. 44, Pp. 1209-1248.) Cause of Arterial-Mesenteric Occlusion of Duodenum. F. Lichtenstein. (Zur Aetiologie des art.-mesent. Verschlusses des Duodenums.)
80 (No. 45, Pp. 1249-1272.) Is Sterilization of a Wife Justified? Mensinga. (Keine Sterilization der Frau?)
81 Two-Way Uterine Catheter. Gutbrod. (Ein neuer Uterusspülkatheter.)
82 (No. 46, Pp. 1273-1296.) *Behavior of Peritoneum in Presence of Foreign Body. W. S. Gruzdew. (Verhalten des Bauchfelles Fremdkörpern entgegen.)
83 (No. 47, Pp. 1297-1320.) Colpeurynter or Knife in Treatment of Total Inversion of Uterus? F. v. Neugebauer. (Kolpeurynter oder Messer?)

77. **Puerperal Morbidity at Zweifel's Gynecologic Clinic.**—Thies states that the use of gloves in the maternity reduced the morbidity by 9 per cent. A further reduction followed the adoption, in 1903, of the plan of wiping out the clots of blood in the vagina after delivery. During 1905 the morbidity was 8.02 per cent. of 1,471 cases. From four to ten hours after delivery a Trélat speculum is introduced very gently into the vagina and the larger clots of blood seen in the vagina are removed with small swabs introduced in such a way that they do not come in contact with the skin. The clots are wiped out very gently so as not to disturb the healing of any erosions or cracks in the vaginal walls. Another innovation at the clinic to which Zweifel ascribes a great reduction of the morbidity is the use of caps for the nipples, the infants sucking through the caps.

82. **Foreign Body in Abdomen.**—Gruzdew relates that a multipara of 51 had an ovarian cyst removed by an eminent surgeon in a well-managed hospital. She was healthy for a year and then abdominal pains were experienced, gradually

growing more severe in the course of six years, and finally localized at a certain point in the abdominal wall, where the tip of a sharp instrument at last presented. It was recognized as a forceps; the handle could be palpated in the pouch of Douglas. It was removed through an incision at this point and proved to be a Terrier forceps, closed, measuring 22 cm., nearly 9 inches in length. The peritoneum had tried to encapsulate the foreign body, so that its removal was practically an extraperitoneal operation. The membranous encapsulation covered all parts of the instrument except the sharp tip.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

84 (XXXII, No. 46, Pp. 1849-1888.) Agglutination of Meningococci. H. H. Kutscher. (Zur Aggl. der Meningococcen.)
85 *Permeability of Digestive Tract for Bacteria. A. Uffenheimer. (Durchlässigkeit des Magendarmkanales für Bakt.)
86 *Experimental Studies of Eclampsia. W. Weichardt and W. Piltz. (Exp. Studien über die Eklampsie.)
87 *Serous Meningitis. G. Riebold. (Ueber seröse Men.)
88 *Defective Hearing for Musical Tones. E. Barth. (Zur Diplacusis disharmonica.)
89 "Inundation Fever." M. Ogata. (Aetiologie der Tsutsugamushi-Krankheit: Ueberschwemmungsfieber nach Baelz.)

85. Permeability of Digestive Tract for Bacteria.—Uffenheimer introduced a suspension of the *Bacillus prodigiosus* into the rectum of rabbits, and found that the bacteria rapidly made their way upward into the stomach, esophagus and throat and from the throat into the air passages and lungs. The bacillus was found in the lungs four hours after the experiment. He believes that this upward migration of germs from the stomach explains the passage of bacteria from the digestive tract into the lungs, without the necessity for assuming that they pass through the intestinal walls. He reviews the various works that have been published in German on the intestinal origin of tuberculosis. In recent previous experiments he found that the *Bacillus prodigiosus*, *Micrococcus tetragenus* and the *Bacillus anthracis* were unable to pass through the walls of the digestive tract of new-born guinea-pigs, but that tubercle bacilli were able to traverse the wall with ease, both in the young and in the adult guinea-pig, and he found that the intestinal tract of the new-born rabbit was also permeable for the *Bacillus prodigiosus*. The positive results reported by others in regard to the permeability of the walls of the intestinal tract of the adult rabbit are more likely to be due, he thinks, to upward migration of the germs introduced into the stomach through an external incision or introduced into the rectum rather than to any permeability of the intestinal walls. Bacteria arriving in the throat from below can easily be aspirated into the lungs.

86. Experimental Studies of Eclampsia.—Weichardt has succeeded in isolating a blood-coagulating substance from the toxin isolated from the placentæ of eclamptic women, besides the element in the toxin which causes arrest of the respiration. By segregating these substances and treating rabbits with them he was able to produce an immune serum which, he claims, checked the development of the symptoms after injection of the toxin, as he describes in detail. His findings seem to indicate that eclampsia is induced by toxic substances formed by cytolysis of the elements of the placenta arriving in the circulation, occurring in women in whose blood there is a lack of natural anti-endotoxic or inhibiting elements. If it were possible to detect the women with this predisposition to eclampsia and to supply artificially the lacking anti-endotoxic or inhibiting elements, the eclampsia might be warded off in the clinic as effectually as in his experimental researches. The new inhibiting substance has always shown itself perfectly harmless for man, he states, and, as it dialyzes readily, it passes rapidly and unmodified into the circulation through the stomach walls when given by the mouth.

87. Acute Serous Meningitis.—Riebold describes several cases of acute serous meningitis which he does not think is such a rarity as generally assumed. The prognosis is favorable in general; the principal danger lies in the effects of compression from the increased fluid, and this, he declares, can easily be averted by spinal puncture done early and repeated at need. The rapid subsidence of the symptoms after relief from the pressure of the cerebrospinal fluid differentiates the affection. None of the others resembling it allow of such rapid retrogression. In one case described a single puncture at the fourteenth day was followed by complete recovery. In another case the meningitic symptoms vanished the fifth day after the puncture, and when they recurred after an interval of ten days they subsided again permanently by the fourth day after the second puncture. The clinical picture may be very serious, simulating that of purulent or tuberculous meningitis or an abscess or tumor in the brain, and the symptoms may vary from time to time. Serous meningitis in the course of typhoid, pneumonia or influenza is liable to be overlooked, but spinal puncture will reveal the overpressure of the cerebrospinal fluid and, he claims, is liable to banish the meningitic symptoms. In his primary cases the onset was sudden and severe, intense pains in head and limbs, high fever, constipation, sleeplessness and early delirium. Spinal puncture on the ninth day showed a pressure of 280 mm. water and 25 c.c. of fluid were withdrawn, with a terminal pressure of 110 mm. The fluid proved to be sterile, gave a positive albumin response and a few lymphocytes were found in the sediment. Immediately after the puncture the previously entirely comatose patient revived, was conscious and replied to questions, drank and urinated. This instantaneous transformation in the entire clinical picture was really amazing. After a night of quiet sleep, the patient became partially delirious again, but was relieved by spinal puncture; pressure, 180 mm.; amount withdrawn, 10 c.c. The following day the patient's mind was not entirely clear; spinal puncture showed a pressure of 60 mm., but no fluid was withdrawn. Recovery was rapid after this, the fever dropping as by lysis about the fourteenth day with no subjective disturbances. Convalescence was prolonged by an attack of mild myocarditis, which occurred also in some of the other cases. Some of the patients were syphilitics. In a few cases the serous meningitis was secondary to an affection of the ear, and persisted, notwithstanding repeated spinal punctures until the primary focus healed. In one case the onset was very stormy, and spinal puncture revealed a pressure of 300 mm. About 15 c.c. of a sterile hemorrhagic fluid were withdrawn, with immediate relief from the threatening symptoms. A number of punctures were required in this severe case, with fever for four weeks, but by the end of the fifth week the patient was restored except for left oculomotor paralysis with ptosis, rigid pupil, etc. In another case, in a woman of 40, the severe meningitic symptoms ceased abruptly after spontaneous perforation of the tympanic membrane and evacuation of pus, with complete recovery in a few days. In conclusion, Riebold urges the importance of spinal puncture as a harmless and frequently curative measure in all cases with meningitic symptoms of dubious origin, which may otherwise lead to acute internal hydrocephalus with occlusion of the ventricles or some chronic process.

88. Disturbance in Hearing for Music.—Barth reports the case of a singer who found that he heard musical tones with the left ear about half a tone below their true sound, and he was also slightly deaf in this ear. This condition lasted for sixteen months, when hypertrophied turbinates were partially removed, which put an end at once to the diplacusis disharmonica, although the nervous deafness was only slightly improved.

Münchener medizinische Wochenschrift.

90 (LIII, No. 45, Pp. 2185-2322.) Proteolytic Ferment of Leucocytes in Leucocytosis and Ferment-Inhibiting Action of Blood Serum. Eppenstein. (Proteolytisches Ferment der Leukozytosen, insbes. bei der Leukämie, und die fermenthemmende Wirkung des Blutserums.)
91 *Frequency of Endocarditis with Muscular Rheumatism. A. Bechtold. (Ueber zeitweises gehäuftes Vorkommen von Endokarditis bei Musk.-Rheumatismus.)
92 *Unusual Course of Valvular Affections. K. Grassmann. (Seltene Verlaufswesen von Klappenfehlern.)
93 *Sarcomatosis of Epicardium. H. Schöppler. (Sarkomatose des Epik.)
94 Graphic Reproduction of Lung Findings. G. Besold. (Die bildliche Darstellung von Lungenbefunden.)
95 Differential Stain for Fat Granules, Hemoglobin and Cell Nuclei in Frozen Sections. J. Wallart. (Gleichzeitige Darstellung von Fettkörpern, usw.)
96 *Suction Treatment of Nasal Affections.—R. Sondermann. (Zur Saugtherapie bei Nasenerkrankungen.)

91. Infectious Nature of Muscular Rheumatism.—Bechtold states that during a rainy summer recently two wards in von

Leube's service were filled almost exclusively with patients with muscular rheumatism. Among these patients he found six who presented signs of recent endocarditis. Examining the records he found that, since 1903, out of 902 cases of muscular rheumatism, five of the patients had presented the same signs of recent endocarditis. The eleven cases are described in detail. His article was referred to editorially on page 2097 of the last volume, especially his view that the endocarditis was probably due to the rheumatism. In three instances it entailed mitral insufficiency, in two a systolic murmur with accentuation of the second sound, although the heart was not enlarged. These facts he accepts as speaking for the infectious nature of muscular rheumatism, as also the large number of cases observed at certain times, the constant general symptoms and occasional fever, the frequent complication with endocarditis, and above all, the way in which certain epidemics run a mild and others a more severe course. Leube does not believe that the causal agent is the same for articular and for muscular rheumatism, but that the virus of each is closely allied. The difference in the response to the salicylates further differentiates the two causal agents. In a number of cases sore throat had preceded or accompanied the muscular rheumatism. Bechtold is inclined to regard it as always of infectious origin, outside of the toxic and traumatic cases, but that the bacteria causing it are of very slight virulence and induce merely a serous inflammation of the muscles. This assumption explains the favorable effects of massage, as it mechanically dispels the effusion. Miyake has observed the transition of a serous into a suppurative myositis.

92. **Unusual Course of Valvular Affections.**—Grassmann reports a case of apparently complete cure of a valvular defect, the relics of articular rheumatism in a child. Two years later there was a true recurrence of the previously cured valvular endocarditis, proving fatal this time. In a second case a patient of 60, with mitral stenosis and aortic insufficiency with failing compensation, succumbed to repeated intestinal hemorrhages. Nothing was found in the intestines to explain the hemorrhage beyond the general disturbance from the valvular affection.

93. **Sarcomatosis of the Epicardium.**—Schöppler reviews the literature on the subject of primary tumors of the heart and reports a case of primary sarcomatosis of the epicardium. Only 13 cases of sarcoma of the heart are on record, with 32 of myxoma or fibroma, 7 of carcinoma, 5 of lipoma, and 1 of teratoma. The pericardium was affected in only one of the total 61 cases. The left ventricle is the most frequent site. The age of the patients ranged from 3 days to 83 years. Analysis of the cases fails to reveal any characteristic syndrome from the cardiac tumor.

96. **Suction Treatment of Nasal Affections.**—Sondermann has taken the lead in Germany in applying aspiration in treatment of the nose and sinuses. The results are better, of course, the more recent the affection to be treated. The apparatus he is now using for the purpose is a glass, olive-shaped part, to introduce into the nostril, with a rubber bulb on the outer end. The olive is made in two parts, the outer stem projecting into the center of the larger part so that secretions aspirated into the olive do not obstruct the lumen of the narrower, outer part connected with the rubber bulb. He applies the suction for five minutes at a time, repeating it from two to twelve times a day. The suction draws the secretions out of the nose and accessory cavities; it can also be applied in ear affections. It is useful in diagnosing, as it sometimes aspirates pus from some unsuspected recess. The principle is the same as Bier's suction therapy and has the same advantages. Its benefits are peculiarly apparent in the severe cases which otherwise can not be cured without extensive surgical interference. Sondermann gives a number of other practical points to aid the non-specialist in treating such patients. If the secretions retain their purulent character in spite of repeated application of the suction for a week or two, not much relief can be anticipated from this treatment alone. As a rule, however, the secretions, even in ozena, grow less and become more and more serous. If no benefit is obtained in two or three days, further suction treatment is useless.

Therapie der Gegenwart, Berlin.
Last indexed, XLVI, page 643.

97 (XLVII, No. 5, Pp. 193-240). Treatment of Habitual Constipation. E. Klein. (Behandlung der Obstipierten.)
98 *Meat and Vegetable Diets. K. Bornstein. (Fleischkost, fleischlose und veg. Diät.)
99 *Pepsin-Hydrochloric Acid for Infants. L. F. Meyer. (Pepsin-Salzsäure als Stomachicum beim Säugling.)
100 Causes and Treatment of Severe Hemorrhages in Case of Hypertrophied Prostate. B. Goldberg. (Ursachen und Behandlungs-Methoden schwerer Blutungen der Prostatiker.)
101 Carbolic-Acid-Camphor Treatment of Surgical Infections. I. Lemberger. (Phenol-Kampher.)
102 Administration of an Alkali to Avoid Irritation of Kidneys from Salicylates. E. Frey. (Zur Frage der Vermeidung der Salicyl-Nierenreizung durch Alkaligaben.)
103 Aluminum Electrodes. R. Weise. (Wandlungen in der Elektrotherapie.)
104 (No. 6, Pp. 241-288.) *Subcutaneous Alimentation with Fats. H. Winternitz. (Subkut. Fettnährung.)
105 *Essence and Treatment of So-called Membranous Enteritis. A. Albu. (Colica mucosa and Myxorrhœa coli.)
106 *Treatment of Habitual Constipation. O. Kohnstamm. (Behandlung der chron. Verstopfung.)
107 (No. 7, Pp. 289-336.) *Symptoms of Treatment of Absence of Ferments of Gastric Juice. K. Faber (Achylia gastrica.)
108 *Hot Baths in Treatment of Chlorosis. H. Rosin. (Behandlung der Bleichsucht mit heissen Bädern.)
109 Influence of Bodily Exercise on the Temperature, Pulse, Respiration and Blood Pressure in Health and Disease, with Special Reference to the Tuberculous. Flemming. (Einfluss von Körperbewegung, usw.)
110 *Avoidance of Injurious After-effects from Spinal Anesthesia. K. Kroner. (Rückenmarksanästhesie.)

98. **Meat in Diet.**—Bornstein regards 1 gm. of albumin to 1 kg. of body weight as the best proportion of albumin in the diet. It is not necessary to supply this albumin in the form of meat, and he protests most emphatically against the superstition in regard to the special value of meat as a strength giver. Meat contains substances that irritate and produce uric acid; it increases putrefactive processes in the intestines, and promotes autointoxication, and consequently its use should be diminished or suspended entirely in conditions accompanied by irritative processes. Neuralgia, especially when due to autointoxication, improves after reduction of the amount of meat in the diet. Neuritis, rheumatism, hysteric disturbances, neurasthenia and exophthalmic goiter require a non-irritating diet with little if any meat, as also cutaneous affections of the "nervous" type. In diabetes he forbids not only every drop of alcohol, but also reduces the amount of meat, although providing for an abundant supply of albumin in the form of the harmless albumin of milk, generally some preparation of casein, to which he adds a little iron and quinin, and has always been extraordinarily gratified with his results. Avoidance of everything that irritates or intoxicates the insufficient cell, gives the cell a chance to recuperate. He attributes to injury from meat and alcohol a large proportion of the nephritic processes in diabetes. In heart affections the amount of meat should also be reduced, but not entirely suppressed. A "meat scanty" diet is also indicated in gout. The fine results sometimes attained in the so-called "naturopathic" establishments are due to the limitation or entire suppression of meat in the diet. Bornstein adds that obstipation from atony of the intestines should not be treated by overloading the intestines with a voluminous vegetable diet. This induces a vicious circle, which is unnecessary. The intestines should be spared all unnecessary work, and their evacuation be accomplished with a small oil enema or harmless laxative, while treating the organism as a whole to strengthen the muscular system and to cure the generally accompanying anemia. As the extractives of meat stimulate the gastric secretions, meat should be totally avoided during treatment of an ulcer in the stomach.

99. **Pepsin-Hydrochloric Acid to Stimulate the Appetite in Infants.**—Meyer describes the excellent results obtained in a number of cases by the use of pepsin, with or without hydrochloric acid, when infants had lost their appetite, either from weaning or during convalescence from sickness or merely from a kind of nervous anorexia. He found it equally beneficial also for older children suffering from nervous anorexia. The hydrochloric acid alone did not seem to answer the purpose, but this was accomplished sometimes by pepsin alone.

104. **Fats in Subcutaneous Alimentation.**—The experiments related by Winternitz confirm his assertion that fats are not adapted for subcutaneous feeding in any form. He found that an emulsified fat was more readily absorbed, but the total fat in the mixture had to be correspondingly reduced.

105. **Essence and Treatment of Membranous Enteritis.**—Albu gives the conclusions of ten years of study of hundreds of cases of this kind. He distinguishes two forms: The first, which he calls colica mucosa, is characterized by intermittent abdominal pain, while the other form, which he calls myxorrhea coli, is free from the cramps, although sharing with the first form the chronic obstipation and the voiding of cylindrical masses of mucus. The second form is due to atony of the large intestine, while in the first form there is tonic spasm of the intestinal wall. Owing to the sluggish action of the bowels the mucus remains a long time in them, and takes the shape of the tube. He encountered about 10 cases of colica mucosa in the course of the year, and about 100 of the second form. Colica mucosa is observed exclusively in extremely neurasthenic patients, both men and women. It is essentially a neurosis from irritation of the intestines, a primary purely nervous spasm of the colon. The second form of membranous enteritis is a neurosis from relaxation due to primary atony of the large intestine. Treatment of the latter includes cautious massage of the large intestine with the hand or a vibratory apparatus, preferably with the intestines empty: frequently repeated brief faradization of the intestines, with the abdominal walls relaxed: a more or less coarse vegetable diet, with buttermilk, kefir, honey, stewed fruit, milk sugar, grapes, etc., an enemata of cold water or glycerin, and glycerin suppositories. Astringents irritate the intestines and increase the production of mucus. It is important to clear the intestines from the accumulation of mucus, and if repeated soda water or oil enemata do not accomplish the purpose, he gives castor oil as a mild purgative. The colica mucosa is best treated by application of heat to the part, cataplasms, hot sitz and full baths, and sedatives in the form of a suppository with 0.01 or 0.02 gm. belladonna, with or without codein. Opium in any form is contraindicated, as it is apt to entail paralysis of the intestines which increases the tendency to obstipation. In addition, sitz or full baths for twenty to twenty-five minutes should be taken three times a week, and warm enemata of pure oil, with or without soapy water, slowly injected under moderate pressure, to be retained for a time, supplemented by a milk-vegetable diet, the vegetables all mashed and the fruit stewed. Internal administration of bromids, etc., does no good. The treatment of neurasthenia by physical-dietetic measures alone offers chance of success.

106. **Meat as Source of Chronic Obstipation.**—Kohnstamm believes that there is some substance among the products of intestinal digestion of meat which has a direct inhibiting effect on peristalsis, or it may possibly act indirectly by checking the secretion of the intestinal walls and thus rendering the contents of the intestines drier, which in turn renders them less susceptible to the peristaltic action of the intestines. He advises constipated patients to refrain from meat, eating abundantly otherwise, with plenty of milk and butter. In from two to four days the bowels will be acting normally. Kohnstamm thinks that Nature intended man to eat like the monkeys, and that he is not a carnivorous animal.

107. **Treatment of Gastric Achylia.**—Faber long ago demonstrated that gastric achylia always has a basis of chronic gastritis. In treatment the food must be in such a form as to spare the stomach the task of further division. Milk should be avoided if there is a tendency to intestinal disturbance. Buttermilk can sometimes be taken or whipped cream diluted with water. Butter is a great help, also eggs, but meat and raw fruit should generally be all avoided, and vegetables should be mashed and strained. There is no reason for strict dietetic regulations if there are no subjective symptoms. Pepsin and hydrochloric acid are sometimes indicated, but bitters are liable to act still better, especially a dose of fluid extract of condurango before meals. There is seldom any hope of an actual cure, as this stomach function is generally totally lost. The aim of treatment is to keep the condition symptomless. When the condition has lasted a long time without cachexia or retention, malignant disease is scarcely probable.

108. **Hot Baths in Treatment of Chlorosis.**—Rosin says that hot baths have a powerful stimulating action on the bone marrow. In chlorosis he orders a hot bath with the water constantly at 40 C. (104 F.) taken about 11 a. m. for ten to twenty minutes. The patient then takes a cold douche and is rubbed down and then lies down for an hour. Three of these baths are taken during the week for from four to six weeks. A cool wet cloth is kept on the head during the bath. In a month, he declares, the improvement generally amounts to a complete cure.

110. **To Avoid Untoward Effects After Spinal Anesthesia.**—Kroner calls attention to a means of avoiding ill effects after spinal anesthesia. He states that after injection of the anesthetic the anesthesia occurs very promptly, but the anesthetic spreads very slowly through the spinal cavity. This proves, he thinks that only a very small amount of the anesthetic is actually needed. Consequently, he leaves the needle in the tissues after injecting the anesthetic, and after from two to five minutes he allows from 5 to 10 c.c. of the cerebrospinal fluid to escape, thus washing out more or less of the injected anesthetic. No diminution in the anesthesia could be detected, and yet a considerable amount of the anesthetic is evidently washed out with the fluid.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS, with Especial Reference to the Clinical Application of Drugs. By J. V. Shoemaker, M.D., LL.D., Professor of Materia Medica, Pharmacology, Therapeutics and Clinical Medicine, etc. Sixth edition, thoroughly revised. Cloth. Pp. 1255. Price, $5.00 net. Philadelphia: F. A. Davis Company, 1906.

DISEASES OF THE NOSE, THROAT, AND EAR. By C. P. Grayson, A.M., M.D., Clinical Professor of Laryngology in the Medical Department of the University of Pennsylvania, etc. Second edition, revised and enlarged. Cloth. Pp. 532. Price, $4.00 net. Philadelphia: Lea Brothers & Co., 1906.

VOICE PRODUCTION IN SINGING AND SPEAKING, Based on Scientific Principles. By W. Mills, M.A., M.D., F.R.S.C., Professor Physiology in McGill University and Lecturer on Vocal Physiology. Cloth. Pp. 282. Price, $2.00 net. Philadelphia: J. B. Lippincott Company, 1906.

A TEXT-BOOK OF PATHOLOGY. By A. Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania, with 399 illustrations in Text. Fifth edition, thoroughly revised. Cloth. Pp. 979. Price, $6.00 net. Philadelphia: W. B. Saunders Copmany, 1906.

TRANSACTIONS of the Fourth Annual Conference of State and Territorial Health Officers with the United States Public Health and Marine-Hospital Service. Washington, D. C., May 23, 1906. Cloth. Pp. 75. Washington: Government Printing Office, 1906.

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